ELEMENTARY TEACHERS' CONTRIBUTIONS TO CLASSROOM GENDER CLIMATE: AN EXPLORATION OF TEACHER ATTITUDES AND CLASSROOM BEHAVIORS

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ABSTRACT

DISSERTATION: ELEMENTARY TEACHERS' CONTRIBUTIONS TO CLASSROOM GENDER CLIMATE: AN EXPLORATION OF TEACHER ATTITUDES AND CLASSROOM BEHAVIORS

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US elementary schools and classrooms are settings for gender socialization. Whether intentional or not, teachers communicate expectations for students' gender identity/expression in their classrooms and beyond; however, teachers' influences on gender identity/expression remain underexamined. The current study aims to fill gaps in the literature by investigating elementary teachers' potential contributions to classroom gender climate via a quantitative, quasi-experimental design.

Participants for this study were 299 licensed elementary school teachers who were currently practicing in the United States, teaching Kindergarten, first, second, third, fourth, or fifth grade. Participants were recruited directly and indirectly through principal and teacher emails obtained on publicly available lists (e.g., state department of education websites and school websites) and via social media advertising. Participants were randomly shown one of six vignettes describing a target student (either male or female), whose gendered traits, interests, and behaviors were varied such that the student was either gender non-conforming (e.g., a strongly masculine female), gender-conforming, (e.g., a strongly feminine female) or neutral in gender

expression. After presentation of the vignette, participants were asked to complete a questionnaire containing their predictions about the target student's sexual orientation, as well as achievement and capability beliefs in gender-typed academic domains (math, science, reading, and English/language). Participants were then asked to complete a gender climate scale adapted for this research from the work of Ullman (2017) and Brant (2014).

Results from the self-reported gender climate scale indicated that the majority of participants held positive, accepting attitudes toward diverse expressions of gender in their classrooms, regardless of demographic factors such as age, relationship status, teaching experience, gender, race/ethnicity, number of children, school sector, or school socioeconomic status. However, fewer participants overall reported high self-efficacy for engaging in instructional activities and design aimed at creating an inclusive gender climate in their classroom. Additionally, many participants felt less capable of identifying bias against students with diverse gender identities in the school setting.

Results from vignette predictions, an indirect measure of teachers' attitudes, revealed positive expectations of all students' success in traditionally masculine-typed school subjects (math and science). Regardless of gender identity or expression, target students were expected to have moderate success in math and science. Teachers who reported creating more inclusive classroom gender climates also tended to predict higher math and science success for target students.

Gender stereotyped attitudes related to sexual orientation and success in traditionally feminine-typed school subjects were apparent, however. Participants perceived gender nonconforming male target students as most likely to have a non-heterosexual orientation. Female target students were assumed more likely to be heterosexual, regardless of gender

expression. Additionally, teachers expected target students with feminine gender expressions—regardless of gender identity—to experience more success in reading and English/language than masculine target students. This expectation held regardless of teachers' self-reported contributions to classroom gender climate.

These results suggest that US elementary school teachers may feel positive and accepting of students' gender diversity while simultaneously feeling less capable of engaging the instructional practices necessary to create inclusive classroom gender climates, including confronting bias. Additionally, elementary teachers may hold gender stereotyped attitudes regarding students' gender diversity, including the conflation of gender and sexual orientation and the expectation that feminine students will perform better in feminine-typed subjects. Taken together, these findings point to teachers' potential implicit gender essentialist attitudes that may contribute to restrictive gender climates and marginalizing school experiences faced by students of diverse gender identities. These findings elucidate areas for intervention and teacher training, specifically related to implicit gender bias and specific classroom/instructional practices aimed at fostering inclusive classroom gender climates.

DEDICATION

For every woman in my lineage who struggled to be truly seen and heard, and for Keziyah and Phoebe, my children, whose fierce spirits and open hearts give me hope for today and for the future.

With love.

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Completing this dissertation, especially during a global pandemic—the likes of which have not been seen for a century—has truly been a labor of love. Love for myself, for my children, for my partner, for my parents, for my mentors, and for my life. The uncertainties and challenges experienced during my doctoral studies caused personal and professional growth, both of which embodied me embracing my own layered identities proudly, as I am. This process began with the continuous love and support of my parents. Dad's insistent encouragement that

"of course you can do it" and loving humor, "Am I going to have to call you 'Doctor'?" kept my spirits and motivation high throughout my studies. My mom's support has been nothing short of relentless and is being demonstrated as she cares for my children and home even as I write these words. I cannot express enough gratitude for all the roles my mother has played throughout my graduate studies and during the completion of this dissertation, and which I know she will continue to play moving forward.

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CHAPTER I

INTRODUCTION

Given the amount of time children spend in school, the classroom serves as a critical place for socialization and preparation for life as an adult, holding potential to influence a host of outcomes related not only to academics, but also to identity and overall wellbeing. Gender identity and expression are not outside the reach of school's influence, as schools and classrooms, along with their internal and external human resources and institutions, are settings in which gender is socially constructed (Ullman, 2014, 2015; Miller, 2018). Although the socialization of gender is complex and occurs through a variety of potential influences such as parents, authority figures, peer groups, and media (Blakemore, Berenbaum, & Liben, 2008), the importance of schools in gender socialization cannot be understated, as children are often therein exposed to many potential influences simultaneously.

If schools and classrooms are settings for gender socialization, teachers are gender socialization agents (Wentzel, 2009), particularly in cultures espousing traditional educational philosophies in which teachers are regarded as role models or authority figures (Renold, 2006). Elementary school classrooms managed with traditional educational philosophies may be especially potent settings for gender socialization (Renold, 2006; Skelton et al., 2009). This potency may be in part due to children's increased rigidity about gender near the years corresponding to school entry (Trautner et al., 2005; Liben & Bigler, 2002). However, the potential impact of spending large amounts of time under the supervision of a primary teacher cannot be ignored. Whether intentional or not, teachers contribute to their classroom gender climate by communicating expectations for gender identity and expression to their students. Unfortunately, teachers may often contribute to restrictive gender climates and comply with

binary, cisgender/heteronormative constructions of gender in their classrooms (Ullman, 2014; Liu, 2006). The construction and maintenance of restrictive classroom gender climates, although not uncommon in educational settings, creates particularly marginalizing experiences for students who express their gender in creative, unexpected, or nonconforming ways.

In the larger sociocultural gender climate outside of the classroom, gender nonconforming children may experience a number of exclusionary experiences, even from people who claim to hold non-traditional attitudes about gender (Blakemore & Hill, 2008; Freeman, 2007; Blakemore, 2003; Zucker, Wilson-Smith, Kurita, & Stern, 1995). Because teachers may bring influences from the larger sociocultural gender climate with them into the classroom, students' classroom experiences have the potential to be similar to the exclusion faced in other settings. However, a major gap in research in developmental and educational psychology exists with regard to classroom gender climate, particularly related to the role of teachers.

Much of the recent research around gender diversity in schools has focused on students' perspectives (e.g., Toomey, McGuire, & Russell, 2012; Toomey et al., 2013; Bragg, Renold, Ringrose, & Jackson, 2018) of gender identity, gender marginalization, or gender climate. Even a recent study investigating teachers' potential roles in school gender climate relied on student reports (Ullman, 2017), providing an important but limited perspective on gender socialization in school. Although detailed, narrative descriptions of students' experiences have arisen from much of the work on gender diversity in school, majority qualitative designs have limited the breadth and generalizability of findings (e.g., Morrissette, Jesme, & Hunter, 2018; Larrabee & Morehead, 2008; Jones et al., 2016; Günther-Hanssen, Danielsson, & Andersson, 2019; Slesaransky-Poe, Ruzzi, Dimedio, & Stanley, 2013; Frohard-Dourlent, 2016). Additionally,

many of the studies aimed at investigating school gender climate have done so only in the context of adolescence (e.g., Ullman, 2014, 2017; Toomey et al. 2012), when school transitions may influence students' peer and adult support networks to expand exponentially in comparison to earlier childhood (Eccles & Roeser, 2009), despite the potential significance of elementary school in socializing gender. Finally, in the extant literature, as in the larger sociocultural context (Kite & Deaux, 1987), gender diversity and sexual orientation have often been conflated (Bartholomaeus, Riggs, & Andrew, 2017; Brant, 2014, 2017; Ullman, 2015, 2017; Frohard-Dourlent, 2016; Marx, Roberts, & Nixon, 2017; Russell, Day, Ioverno, & Toomey, 2016; Toomey et al., 2012), creating complications in interpretation and meaningfulness of findings.

As it stands, effective teachers must be able to competently deliver instruction to a diverse range of students in their classrooms. But as school systems in the United States increasingly recognize student diversity, including diversity related to gender identity and expression, the aforementioned gaps in the literature warrant address for the benefit of both teachers and students. The current study aims to fill gaps in the literature on gender diversity in educational settings by investigating elementary school teachers' potential contributions to classroom gender climate.

The Current Study

The current study aims to fill gaps in the literature and add meaningfully to the discourse on gender diversity in educational settings via a quantitative, quasi-experimental research design. The aim of the current study is to explore the ways in which elementary school educators contribute to gender climate in their classrooms via indirect and direct assessment of their attitudes toward diverse expressions of gender. The current study is designed to adjust for the limitations of previous research by employing methods such as the following:

- Investigating *teachers'* perspectives on gender diversity in the classroom
- Assessing teachers' attitudes directly and indirectly
- Avoiding the general conflation of gender nonconformity with sexual identity or sexual orientation (e.g., Brant, 2014; Ullman, 2017)
- Avoiding the use of "tomboy" and/or "sissy," which may be perceived as derogatory terms and bias participant evaluations (Martin, 1990; Sandnabba & Ahlberg, 1999)
- Attempting to obtain a larger overall sample size in comparison to relatively small sample sizes of less than 100 participants (Martin, 1990, 1995)

In addition to filling gaps in the literature, the current study is uniquely situated to further the research discourse around a topic of interest and concern, given the current zeitgeist in the United States. Ideas about gender diversity are current topics of discussion in various scholarly, social, political, and legal institutions around the nation, with school-related policies and legislation at the forefront of national policy. For example, in 2017, the United States Department of Education released a "Dear Colleague" letter rescinding a previous legal declaration that included protections for transgender students in Title IX policies (USDOE, "Resources for LGBTQ Students", 2017). This letter allowed schools more freedom to interpret the descriptor "sex" in their application of Title IX protections, giving schools an explicit means by which to regulate gender climate. The current study aims to continue and extend the conversation around issues of gender climate in schools, but with a focus on how teachers' attitudes and behaviors may contribute, as these may be—arguably—more accessible by many stakeholders in education and more susceptible to change quicker than national-level policy.

Study Changes in Response to COVID-19 Pandemic

As originally proposed in March 2020, this research was to employ a mixed-methods design that included classroom observations drawn from a sampling frame within a state in the Midwestern United States. Assessment of teachers' contributions to classroom gender climate through observation may have filled gaps in the literature quite meaningfully, especially aside quantitative data. However, due to the onset of quarantine procedures around the globe, which included school shutdowns and the enforcement of long-term safety measures such as social distancing and limiting person-to-person contact, in-school observations were impossible. Consequently, the study was modified such that data collection could occur online only, yet many schools within the original sampling frame were still unwilling to participate due to extra strains on educators during the pandemic (e.g., transitions to virtual teaching, accommodation of quarantined students, etc.). To navigate these challenges, the sampling frame was modified to include elementary educators from across the United States.

Research Questions

To extend the discourse around issues of gender identity and expression in educational settings, this study aims to investigate elementary school teachers' contributions to their classroom gender climate through their self-reported attitudes (direct attitudes), and a more indirect measure of their attitudes using vignettes. An overview of the research questions, analysis methods, and expected findings can be found in Table 1. Specifically, the current study asks the following two primary research questions:

1. What contributions do elementary teachers make to classroom gender climate?
2. What indirect attitudes do elementary teachers hold about students' diverse expressions of gender?

In an attempt to build on previous literature suggesting attitudes commonly held about children who express their gender in non-traditional ways (e.g., Thomas & Blakemore, 2013; Martin 1990, 1995), attitudes related to sexual orientation and success in traditionally gender-typed academic domains are explored. Self-reported classroom gender climate is explored as a potential covariate of these attitudes. Additionally, the current study engages an exploration of potential differential evaluations based on the sex/gender identity of students who express their gender in diverse ways. Specifically, the following sub-questions are examined to answer research question two:

a. Do teachers associate nonconforming expressions of gender with non-heterosexual orientation?
b. Do teachers associate nonconforming expressions of gender with specific performance outcomes or academic self-efficacy in traditionally gender-typed school subjects?

Hypotheses

Given the paucity of peer-reviewed research on issues related to gender expression and gender climate in educational settings, the research questions listed above, although somewhat exploratory, have potential to add meaningfully to the literature. Although specific/directional hypotheses are not made for every research question, the following findings are tentatively expected:

1. Generally, teachers' direct attitudes about gender diversity are expected to be positive. It is expected that teachers will self-report high levels of acceptance of and positivity toward diverse gender identities and expressions in the classroom. However, teacher

reported self-efficacy for engaging in instructional practices supportive of students with diverse gender identities/expressions may be somewhat lower.

2. Teachers may conflate nonconforming gender expression and non-heterosexual sexuality. Teachers may also consider gender expression as more primary than gender identity in their judgments about school-related outcomes. These expectations may be stronger for male nonconforming vignette targets than for female nonconforming vignette targets.
    a. Vignette targets with nonconforming gender expression will be rated as more likely to be bisexual, lesbian, or gay.
    b. Feminine-expressing vignette targets will be expected have more success in feminine-typed school subjects (English/Language and Reading); whereas masculine-expressing targets will be expected to better succeed in masculine-typed school subjects (Math and Science).

    Additionally, these expectations may vary with self-reported classroom gender climate. Teachers who report fostering less inclusive classroom gender climates may make more extreme judgments about vignette target students. However, the direction of the relationship between direct and indirect attitudes is not hypothesized. Previous research provides evidence that direct and indirect measures of gender-related attitudes may not align (Thomas & Blakemore, 2013; Nurnberger et al., 2016; Holder & Kessel, 2017; Cahill & Adams, 1997). Additionally, social desirability bias may be evident in direct measures of controversial or high-stakes constructs (Krumpal 2013; King & Bruner, 2000).

Definitions of Key Terms

As with many complex constructs in the social sciences, scholarly language around issues of gender can differ dramatically from popular usage of the terms. Scholars also vary in their usage of gender-related language, in part due to the ever-evolving nature of language around the complex and sometimes controversial topic (American Psychological Association [APA], 2020). As such, it is important to operationalize key terms that will be used in the current study. Definitions of important terms can be found in the list below.

Classroom Gender Climate – In line with Ullman's (2014) definition of gender climate as "schools' established boundaries of acceptable gender presentation" (p. 431), classroom gender climate as used herein is defined as the norms about gender identity and/or expression that are endorsed or reinforced in the classroom setting.

Gender Identity – As defined in this research, gender identity refers to the socially-constructed label a person attaches to their gender. Gender identity is considered a multifaceted, dynamic construct (Egan & Perry, 2001) that is shaped by a multiplicity of interactions between both individual and contextual influences (Martin & Ruble, 2010).

Gender Expression – Gender expression involves the ways in which a person demonstrates the gender identity label they assume. Gender expression can include physical, psychological, and behavioral components, such as physical appearance, personality characteristics, interests, or engagement in certain activities (APA & National Association of School Psychologists [NASP], 2015). Gender expression is assumed to be highly variable and in many regards malleable via individual agency.

Cisgender – As used herein, cisgender is a gender identity descriptor that applies when a person's biological sex assigned at birth and gender identity label align. For example, a person who identifies as a woman and was assigned the biological sex of female at birth would be considered cisgender. 'Cis' is a Latin prefix roughly translating to "on the same side" (Cava, 2016, p. 1).

Gender Nonconforming – As used in the current study, gender nonconforming is an umbrella term for creative or sometimes unexpected expressions of gender (APA, 2015). People who do not adopt the behaviors, interests, traits, and activities that correspond to their assigned gender, but instead adopt those behaviors, interests, traits, and activities corresponding with another gender, are said to be gender nonconforming (APA, 2015). Because gender nonconformity is used herein as an umbrella term primarily involving gender expression, gender nonconforming individuals may identify as male, female, or non-binary (e.g., transgender, genderqueer, gender fluid, etc.).

Functional Use of Gender – The functional use of gender occurs when gender labels (often binary, cisgender labels) are used in situations where gender is irrelevant or of very little importance (Bigler, 1995). Examples of the functional use of gender in a classroom setting might include assigning seats based on gender, organizing activity centers based on gender-typing, or using language such as, "boys and girls" rather than "students" or "friends."

Teachers' Indirect Attitudes – Teachers' indirect attitudes are defined as the subjective judgments teachers make about target vignette students who vary in gender identity and expression. Herein, these judgments will be related to the specific outcomes of sexual orientation, school performance and capability beliefs in gender-typed academic domains.

Teachers' Direct Attitudes – Teachers' direct attitudes are defined herein as the subjective self-reports teachers offer in response to questions about their acceptance of gender identity/expression diversity and their self-efficacy for engaging in inclusive educational practices related to gender diversity.

Table 1: Research Question Alignment Table

	Research Question	Measure	Analysis	Hypothesis/Anticipated Results
1.	What contributions do elementary teachers make to classroom gender climate?	Gender Climate Scale	Descriptive Statistics, Psychometric Analysis	High positivity/acceptance of gender diversity; but possibly lower self-efficacy for creating inclusive gender climate.
2.	What indirect attitudes do teachers hold about students' diverse expressions of gender?	Vignette Questionnaire	ANCOVAs (Analysis of Covariance)	Teachers may demonstrate traditional gender stereotypes in their judgments of the vignette target. Self-reported contributions to classroom gender climate may or may not align with indirectly measured attitudes.
a.	Do teachers associate nonconforming expressions with non-heterosexual orientation?	3 Likert-Type Items	2 × 3 Factorial ANCOVA	Targets with non-conforming expression will be rated as more likely to be bisexual, lesbian, or gay.
b.	Do teachers associate various gender identities or expressions with success in traditionally gender-typed school subjects?	8 Likert-Type Items (4 masculine; 4 feminine)	(2) 2 × 3 Factorial ANCOVAs	Feminine expressing targets will be rated as more likely to succeed in English & Language/Reading; masculine expressing targets will be expected to better succeed in Math & Science.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The socialization of gender is complex, and occurs through a variety of potential influences, such as parents, authority figures, peer groups, and media (Blakemore, Berenbaum, & Liben, 2008). Knowledge about gender categories begins very early in development, before two years of age, when gender labeling and increased gender-typed play begins (Zosuls et al., 2009). By the early elementary school years, children have been deeply educated in gender constancy and have fuller knowledge of gender stereotypes, which can provide foundations for the development of their own gender identity and expression (Carter & Levy, 1988).

Schools provide an important context for potential influences on gender role development, as children spend much of their childhood in school, with access to peer groups, authority figures, and information about socially normative attitudes and behaviors related to gender. Schools may be a particularly potent context for socialization of gender, as children often experience multiple simultaneous influence in school. For example, messages about gender may be present textbooks or classroom materials (Blumberg, 2008); peers may act as gender enforcers, engaging strict social consequences for noncompliance (Günther-Hanssen et al., 2019; Xiao, Cook, Martin, & Nielson, 2019; Reay, 2001). However, the role of teachers as agents of gender socialization (Wentzel, 2009) cannot be ignored.

Unfortunately, teachers sometimes perpetuate gender stereotypes and inequality in their classrooms, similar to what is seen outside of the school context (Ullman, 2014; Liu, 2006). These stereotypes and inequalities, often based in binary, cisgender/heteronormative conceptualizations of gender (Ullman, 2014; Liu, 2006), can contribute to exclusionary

experiences for many students, but especially those who express their gender in creative or unexpected ways. The purpose of the current research is to explore how elementary school teachers contribute to gender climate via their classroom behaviors and attitudes.

In this chapter, an outline of the theoretical framework upon which the current research stands is provided, followed by a review of the literature relevant to the current study. This chapter concludes with a restatement of the aims, research questions, and hypotheses of the current study, which can be found in fuller detail in Chapter I.

Theoretical Framework

Philosophical Perspective of Gender

Although gender identity and expression have been explored from a number of theoretical perspectives, most psychological research has failed to capture the complex multidimensionality (Spence, 1993; Spence & Buckner, 1995; Maccoby, 2000; Ruble, Martin & Berenbaum, 2007; Meredith, 2015) and non-binary, fluid potential of the constructs, as well the potential role of a number of important contexts such as schools and classrooms (Bartini, 2006; Alfieri, Ruble, & Higgins, 1996). The current research is framed from a view of gender identity and expression that intends to advance the extant literature beyond such exclusive, binary, heteronormative conceptualizations (Butler,1988). To do so, the current research adopts an eclectic theoretical perspective (seen below in Figure 1) drawing from social cognitive theory (Bandura, 1986; Bussey & Bandura, 1999), gender schema theory (Martin & Halverson, 1981; Martin et al., 2002), and Brinkman, Rabenstein, Rosén, & Zimmerman's (2014) model, which emphasizes authenticity as agency in response to environmental stimuli. Furthermore, the theoretical framework underlying the current research adopts a postmodernist view of gender identity and expression aligned with dynamic systems theory (Hare-Musten & Marecek, 1988;

Thelen & Smith, 1994, 2006; Thelen, 2005) and ecological systems theory (Bronfenbrenner & Morris, 2006), in that it expects intra-individual and inter-individual variation in gender identity/expression as well as the bidirectional, dynamic relationships among the biological, psychological, and contextual factors that influence it.

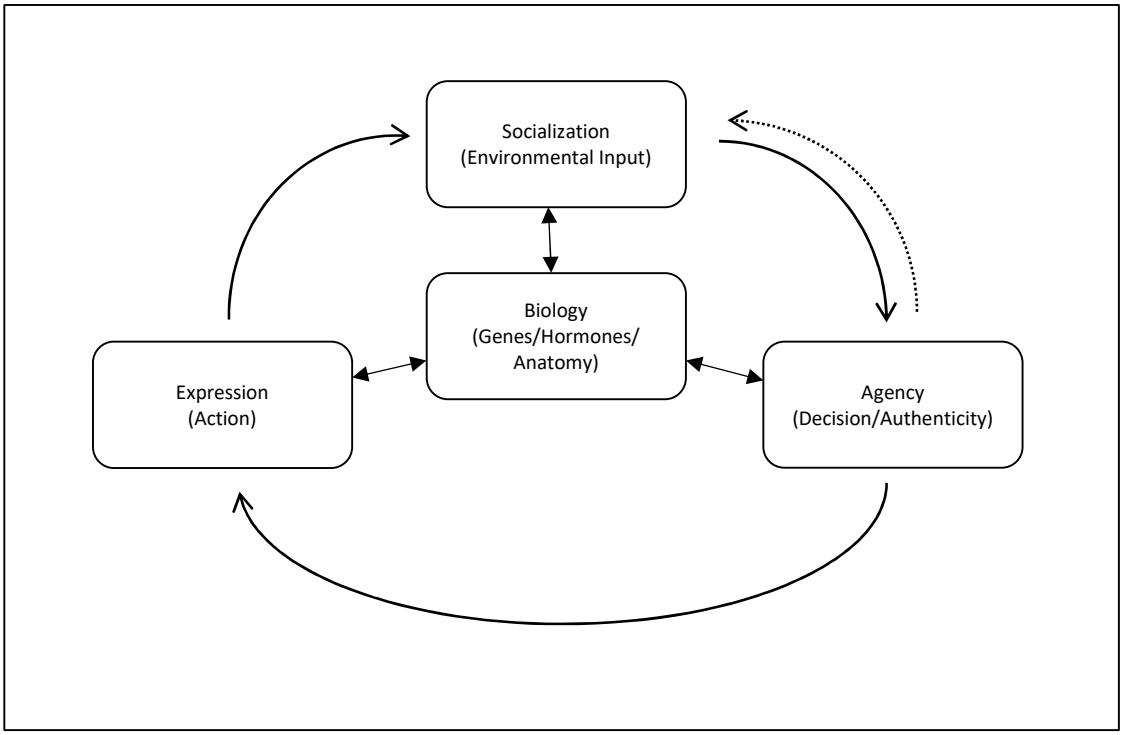

Figure 1: An Integrative Model of Gender Development

Gender Diversity in School

Given the amount of time children spend in school, the classroom is a critical place for socialization and preparation for life as an adult, holding potential to influence a host of outcomes related not only to academics, but also to overall wellbeing. Especially in earlier school years, students spend a large amount of time under the supervision and influence of teachers, who can play important roles in socialization processes and student outcomes in school.

Somewhat surprising is the lack of quantitative, empirical investigations directly investigating teachers' potential influence on students' gender identity or expression. However, a body of qualitative research as well as some quantitative work with implications for teachers' potential influence may provide insight to processes involved. Research from multiple perspectives points to the role of teachers' gender-related behaviors and attitudes in the construction and endorsement (or potential deconstruction) of school/classroom gender culture and climate (Ullman, 2014; Skelton et al., 2009; Liu, 2006) as important influences on students' gender identity/expression. Moreover, the ways in which teachers construct gender climates in their schools and classrooms may have the potential to shape a host of other student outcomes, including overall well-being and academic outcomes, especially for students who may express their gender in nonconforming or nontraditional ways (Thomas & Blakemore, 2013).

The Larger Gender Climate

Just as gender development itself is assumed to be situated in a complex interplay of influences, teachers' contributions to school/classroom gender climate cannot be thoroughly reviewed without consideration of the larger gender climate in which they are saturated. This is especially true given the dearth of research on teachers' roles in school/classroom gender climate. One lens through which the larger sociocultural gender climate can be examined is attitudes about gender diversity, which has often been investigated as attitudes toward gender nonconformity. People who do not adopt the behaviors, interests, traits, and activities that correspond to their assigned gender, but instead adopt those behaviors, interests, traits, and activities corresponding with another gender, are said to be gender nonconforming, or sometimes, gender diverse (APA, 2015; Thomas & Blakemore, 2013).

Attitudes Toward Gender Nonconformity

Research on attitudes toward gender nonconformity has revealed that in general, people do not react positively to gender nonconformity. Gender nonconforming behaviors in childhood may not be well-regarded by adults, including by adults who claim not to hold or promote traditional gender roles (Blakemore & Hill, 2008; Cahill & Adams, 1997; Freeman, 2007). Additionally, children who understand prescriptive norms about gender evaluate at least some forms of gender nonconformity negatively (Blakemore, 2003; Zucker, Wilson-Smith, Kurita, & Stern, 1995; Xiao et al., 2019). Negative attitudes and reactions to gender nonconformity from influential adults and peers (e.g., social rejection, as mentioned previously) may contribute to stigma experienced by gender nonconforming children, potentially influencing negative outcomes.

Differential evaluations of gender nonconforming boys and girls. Although gender nonconformity is generally evaluated negatively, reactions are not uniform across gender identities. Empirical findings have indicated that negative reactions from families, teachers, and peers may be more negative for boys than for girls (Blakemore & Hill, 2008; Fagot, 1977; Kane, 2006; Martin, 1990; Sandnabba & Ahlberg, 1999; Thomas & Blakemore, 2013). Several decades ago, Fagot (1977) found that when preschool boys engaged in cross-gender behaviors and interests, they received negative feedback from both peers and teachers. In somewhat more recent investigations, Martin (1990, 1995) found that college students believed "tomboys" (gender nonconforming females) were more acceptable than "sissies" (gender nonconforming males). The participants in Martin's studies also found it more acceptable for girls to play with masculine-typed toys and have masculine personalities than it was for males to play with feminine-typed toys or have feminine personalities. Moreover, one group of participants reported

that they would feel better about having a gender nonconforming female child as opposed to a gender nonconforming male child (Martin, 1990). More recently, Thomas and Blakemore (2013) found that college students made different predictions about future outcomes (sexual orientation and psychological adjustment) for gender nonconforming male children than gender nonconforming female children.

Attitudes Regarding Sexual Orientation. Although gender nonconformity and sexual orientation are two separate constructs that may not always be associated, people tend to believe that an association between gender nonconformity and non-heterosexual orientation exists (Blashill & Powlishta, 2009; Thomas & Blakemore, 2013). According to "inversion theory," (Kite & Deaux, 1987), people may tend to think that, in terms of gender expression, gay men are similar to heterosexual women and lesbian women are similar to heterosexual men. Adults tend to predict that gender nonconforming children will be more likely to have a gay or lesbian identity as adults than will gender-typical children (Martin, 1990; Sandnabba & Ahlberg, 1999; Thomas & Blakemore, 2013); however, as alluded to in the previous section, this prediction is typically stronger for gender nonconforming boys than gender nonconforming girls. It should also be noted that in both retrospective and prospective studies of gender nonconforming persons, gender nonconformity has been associated with non-heterosexuality (Bailey & Zucker, 1995; Green, 1987; Lippa, 2008; Rieger et al., 2008); however, such methods have been criticized for their reliance on participant memory and use of selective and non-representative samples. Such findings may contribute to the conflation of the constructs more popularly.

Attitudes Regarding Psychological Adjustment. Research spanning several decades has provided evidence that people believe gender conformity and nonconformity are related to psychological adjustment (Martin, 1990; Thomas & Blakemore, 2013; Sandnabba & Ahlberg,

1999). Martin (1990) found that college students believed that the more gender conforming a child's behavior was over time, the more psychologically well-adjusted that child would be as an adult. In a study utilizing a sample of 224 Finnish parents, Sandnabba and Ahlberg (1999) found that parents expected gender nonconforming children to be less well-adjusted psychologically; this expectation was stronger for gender nonconforming boys than for gender nonconforming girls. Thomas and Blakemore (2013) found similar results with college students' predictions of psychological adjustment (specifically, predicted internalizing and externalizing behaviors): participants expected that gender nonconforming boys would more likely engage in behaviors indicative of poor psychological adjustment. Specifically, gender nonconforming boys were expected to engage in internalizing behaviors.

School/Classroom Gender Climate

The attitudes toward gender diversity previously described contribute to a larger sociocultural gender climate that teachers may bring with them into their schools and classrooms, which serve as settings in which gender is socially constructed (Ullman, 2014, 2015; Miller, 2018). People and institutions both within and outside of the immediate school context play roles in constructing gender in school (Ullman, 2014). Although school culture can result in the construction of multiple types of masculinity and femininity (Reay, 2001), the constructions of gender that appear in educational settings tend to stem from gender essentialist beliefs (Kessler, Ashenden, Connell, & Dowsett, 1985) and consequently result in a binary aligning with a "heterosexual matrix" (Butler, 1999; Ullman, 2015b; Miller, 2018; Luecke, 2018; Rands, 2009). Additionally, students learn very quickly which types of masculinity and femininity—typically "hegemonic masculinity" and "emphasized femininity"—are encouraged and accepted via enforcement of a school's "gender regime" (Kessler et al., 1985; Ullman, 2015b).

A way to understand the "gender regime" (Kessler et al., 1985) of educational settings is through the construct of gender climate. The way that specific gender identities are cultivated or enforced in a school comprises the school's gender climate (Ullman, 2014). Gender climate is an important piece of the overall school climate; however, it more directly involves "schools' established boundaries of acceptable gender presentation" (Ullman, 2014, p. 431). Gender climate involves both overt and hidden curriculum related to gender identity and expression, as well as the social and academic ramifications of expressing a particular gender identity.

Every level of the school is implicated as a contributor to gender climate, from the institutions creating and enforcing school policies, to the school faculty and staff, to the students, their families, and their peers. For better or worse, schools tend to create and enforce gender climates that mirror the values of the larger institutions within which they are situated. In the United States, schools may police gender along binary lines that reflect violence and oppression of larger systems (Miller, 2018). For example, many schools construct and maintain cisgender biases that can place students with diverse gender identities at risk for negative school-related and mental health outcomes (Hatchel, Valido, De Pedro, Huang, & Espelage, 2019; Ullman, 2015a; Miller, 2018). Restrictive and punitive gender climates can place limits on the agency of gender diverse and cisgender students alike, potentially influencing the ways they express their gender identity.

Although students and peers contribute significantly to gender climate in schools, especially by enforcing gender-essentialist rules around gender identity/expression (Günther-Hanssen et al., 2019; Xiao, et al., 2019; Reay, 2001), teachers may play an especially important role in gender climate, both in the classrooms and in their larger school settings (Ullman, 2014). Teachers are agents of socialization (Wentzel, 2009) with whom students spend a great deal of

time, especially during early and middle childhood. Additionally, in cultures espousing traditional educational philosophies, teachers are often seen as the authority figure in a classroom (Renold, 2006). These key characteristics of teachers uniquely position them to influence the gender climate in classrooms and schools. In part because they perceive teachers as authoritative, students (especially those who are younger) may envision teachers as models of masculinity or femininity whom they should emulate (Renold, 2006; Skelton et al., 2009). This may be especially true for teachers who foster emotionally supportive relationships with students, as perceived social support and safety can increase students' motivation for both academic and social curricula in the classroom (Wentzel, 2009). Whether intentional or not, teachers contribute to their classroom and school gender climates by communicating expectations for gender identity and expression to their students. Unfortunately, teachers may often contribute to restrictive gender climates and comply with binary or heteronormative constructions of gender in both their behaviors and their attitudes (Ullman, 2014; Liu, 2006).

Teacher Behavior

Explicit policing of gender expression. Empirical evidence provides support that some teachers may provide explicit criticism and praise related to students' gender identities and expressions. In a classic, and now dated, observational study spanning six years, Fagot (1977) found that preschool teachers consistently criticized children who behaved in ways contrary to traditional gender stereotypes. This criticism was especially harsh for boys who engaged in activities typed as "feminine," such as dress up or doll play. More recent research has found that teachers may loosen the reigns with regard to gender stereotypes, especially in the preschool years (Bochicchio et al., 2019). Rather than attempting to "correct" gender nonconforming identities or expressions, which stems from a history of deficit-based views of gender and/or

sexuality, teachers may employ a more dismissive approach (Bochicchio et al., 2019). However, with older students, who may be perceived as less innocent, teachers may be more likely to employ corrective approaches to gender identities or expressions that do not conform to traditional stereotypes. A specific way that teachers may explicitly police gender in schools is through the enforcement of appearance codes differentiated by gender (Ullman, 2014).

Differential treatment of male and female students. Decades of qualitative and quantitative research has established that teachers interact and behave differently with male and female students in the classroom (Kelly, 1988; Okpala, 1996; M. Sadker, Sadker, & Klein, 1986; Tsouroufli, 2002; Leaper & Spears Brown, 2014; Parsons et al., 1982; Liu, 2006; Skelton et al., 2009; Jones & Dindia, 2004). One of the earliest and most consistent ways teachers treat boys and girls differently involves the way they construct learning opportunities based on perceived gender differences (Skelton et al., 2009). Gender segregation of activities in early childhood educational settings (e.g., pink kitchen centers and blue building block stations) are a testament to teachers' differential treatment of male and female students (Liu, 2006). Early childhood educators are not alone in their differential treatment of students based on gender; elementary school teachers report that they purposely vary their classroom management and instructional strategies depending on students' gender (Skelton et al., 2009).

Teachers' gender-differentiated instruction and classroom management has often been studied through the lens of student-teacher interaction. Although the effect sizes have been small to moderate, meta-analytic investigations since the 1980s have provided support that teachers tend to give male students more attention in the classroom overall, to include both praise and criticism (Parsons et al., 1982; Kelly, 1988; Jones & Dindia, 2004). However, there is also evidence that female students' misbehaviors are perceived by teachers to be more problematic

than those of male students (Reay, 2001). Taken together, these findings provide support that teachers' differential interactions with male and female students may reinforce the primacy of males and/or cisgender masculinity in schools (Liu, 2006). Regardless of which gender stands to receive more harm, differential treatment from teachers serves to communicate messages about gender identity and expression to students, typically through the reinforcement of traditional gender stereotypes (Liu, 2006).

Teachers as moderators of peer influences. As mentioned previously, students play an important role in constructing and maintaining gender climate in schools and classrooms (Ullman, 2015b). Often the maintenance of restrictive gender climates occurs via bullying or aggression toward students who do not comply with the most acceptable forms of cisgender masculinity and femininity (Kessler et al., 1985; Reay, 2001; Ullman, 2014, 2015a, 2015b). Teachers, especially those who foster supportive relationships with students (Wentzel, 2009), may have unique opportunities to moderate the peer influences on gender climate in schools and classrooms. Recent research has demonstrated that students' perceived victimization and perpetration of bullying behaviors may decrease when teachers intervene to stop bullying or acts of aggression (Mucherah, Finch, White, & Thomas, 2018). When teachers intervene in instances of bullying or aggression related to gender identity/expression, students may feel safer and more freely able to express their authentic gender identity, especially if their identity is not cisgender or binary (Ullman, 2015a, 2015b). Moreover, students with diverse gender identities who feel they have supportive teachers report an increased sense of connection to their school as well as increased psychological wellbeing (McGuire, Anderson, Toomey, & Russell, 2010; Ullman, 2015a, 2015b, 2017).

As potential moderators of school climate, teachers have not only the ability to foster inclusive gender climates, but also the ability to comply with or exacerbate restrictive gender climates in their classroom or school. Teachers' compliance with restrictive gender climates may be evidenced by the neglect of education around issues related to gender diversity, which could be unintentional or purposeful (Ullman, 2014). Teachers may also contribute to negative gender climate by not intervening in instances of bullying or aggression against diverse expressions of gender identity, or, alternatively, by intervening but not elaborating on why aggression toward gender diversity is unacceptable (Ullman, 2015a, 2015b). Recent evidence provides support that a smaller number of teachers may contribute to negative gender climate by actively supporting or engaging in acts of aggression regarding diverse gender expressions (Renold, 2006; Jones et al., 2016; Ullman 2015a). Given its association with negative school-related and psychological outcomes, the inappropriate use of students' pronouns (i.e., refusal to use them) can be considered one such act of aggression (Jones et al., 2016). Teachers may also foster negative gender climates by using or supporting the use of homophobic or transphobic language (Renold, 2006; Ullman, 2015a).

Teacher Attitudes

Underlying the behaviors teachers engage in to influence their classroom and school gender climate are their gender-related attitudes. For example, teachers' intervention (and likely their own participation) in instances of gender-related bullying is related to their beliefs about how normative the experience of bullying is for students (Troop-Gordon & Ladd, 2015). Other more general attitudes may also contribute to teachers' behaviors around gender and influence on gender climate, including perceived helplessness, gender essentialist attitudes, "gender blind" attitudes, and teachers' self-efficacy for engaging gender diversity in their classrooms.

Helplessness. A recent qualitative study conducted in Scotland found that early childhood educators may not believe they play a very important role in children's gender identity development or expression during the preschool years (Wingrave, 2018). Similarly, a qualitative study with instructors of science, math, engineering, and technology (STEM) university courses in the United States found that when instructors noticed gender inequality, they felt that its cause was largely out of their control (Blair, Miller, Ong, & Zastavker, 2017). Although the design of these studies limits generalization to other contexts, a sense of helplessness regarding students' gender identity and expression may stem from gender essentialist or deterministic attitudes that ultimately contribute to restrictive gender climates.

Gender essentialist attitudes. Gender essentialism (Gelman, 2003; Gelman et al., 1986, Ruble et al., 2007) is an ontological belief in which men and women are seen as inherently different in relatively fixed physical and psychological ways that influence observable differences in behavior between genders. Gender essentialist beliefs—for example, that male students are better suited for learning science and math—likely underlie many of the behaviors teachers engage in to foster and maintain binary, heteronormative gender climates (Kessler et al., 1985; Morrissette, Jesme, & Hunter, 2018; Gullberg, Andersson, Danielsson, Scantlebury, & Hussénius, 2018; Kollmayer, Schober, & Spiel, 2018; Liu, 2006). When investigated via direct self-report, many educators demonstrate egalitarian rather than essentialist gender-role attitudes (Cahill & Adams, 1995; Erden, 2004; Leaper & Spears Brown, 2014). However, teachers' explicit egalitarian beliefs may be the product of avoiding appearing sexist when participating in research on gender (Erden, 2004), as other studies reveal explicit gender essentialism perpetrated by teachers (Morrissette et al., 2018; Skelton et al., 2009; Liu, 2006). Additionally, teachers may continue to hold implicit gender essentialist attitudes that can have implications for differential

treatment of students based on gender (Cahill & Adams, 1997). Recent research demonstrating that K-12 mathematics teachers expected female students to have lower mathematical ability than male students (Copur-Gencturk, Cimpian, Theule Lubienski, & Thacker, 2020) stands as evidence of teachers' potential gender essentialist attitudes.

Whether explicit or implicit, teachers' gender essentialist attitudes may influence their interactions with students and reinforce traditional gender stereotypes in the classroom, which, in turn, may impact students' gender identity expression (or other aspects of students' identity and school performance) via self-fulfilling prophecies (Jussim & Eccles, 1992; Holder & Kessels, 2017; Nürnberger et al., 2016; Kollmayer et al., 2018). For example, preschool teachers' traditional gender role beliefs have been associated with poor reading outcomes for boys (Wolter et al., 2015). Additionally, teachers' explicit and implicit gender stereotyped beliefs may 'spread' to students, thereby contributing to negative gender climate. Teachers' explicit stereotypes of math as a masculine subject may predict the same stereotype in students (Keller, 2001); female teachers' own math anxiety has been related not only to students' low math performance, but also to increased endorsement of traditional gender-typed conceptualizations of math as masculine (Beilock, Gunderson, Ramirez, & Levine, 2010). Ultimately, explicit and implicit gender essentialist attitudes foster perceptions of male and female students as dichotomous, homogenous groups. Such a conceptualization of students' identities ignores issues of intersectionality and dismisses the reality of gender diversity (Liu, 2006).

Gender blindness. An alternative to gender essentialist and stereotyped attitudes toward students' gender identity and expression is the attitude of "gender blindness" (Blair et al., 2017). Teachers who claim an attitude of gender blindness maintain that students' gender identities and expressions are of little importance in school, or that there are no true differences between

genders (i.e., beta bias, Hare-Musten & Marecek, 1988). Although teachers purporting gender blindness may hold more egalitarian attitudes around gender, they may ultimately contribute to a negative gender climate via complicity, as gender blind approaches can fail to meet the needs of students by not recognizing issues of gender inequity (Blair, 2017).

Additionally, students who identify as gender diverse may find their health and wellbeing particularly threatened by teachers' gender-blind attitudes, since gender-blind approaches are dismissive of diverse expressions of gender identity (Blair, 2017; Rands, 2009). Still, it may be easier for teachers to maintain gender blind attitudes when working with students of diverse gender expressions, given the potential challenges associated. Teachers may respond to students of diverse gender identities and expressions with fear or anxiety, especially related to feeling unprepared, fearing backlash from their communities, and being concerned with confidentiality of students' identities (Payne & Smith, 2014). Although gender blind attitudes may seem a step in the right direction, they may serve as an attempt of teachers to fit students of diverse gender identities/expressions into the existing gender climate, rather than working to make the gender climate more inclusive (Smith & Payne, 2016). To foster inclusive gender climates in their classrooms and schools, teachers must actively engage against their own and others' attitudes and behaviors that contribute to an exclusive, heteronormative binary around gender (Miller, 2018).

Self-Efficacy for Engaging Gender Diversity. Self-efficacy, which stems from Bandura's social cognitive theory, is comprised of the beliefs a person holds about how capable they are at performing a certain task (Bandura, 2001; Bandura & Wessels, 1997; Schunk & DiBenedetto, 2016). An individual's self-efficacy, or a lack thereof, for a particular task can influence outcomes related to that task by influencing affect, choices, goal-setting, and effort

exertion related to the task. Consequently, an individual's beliefs about their capability at a task can come to fruition as a self-fulfilling prophecy (Schunk 2012; Schunk & DiBenedetto, 2016).

Research has demonstrated that teachers' beliefs about their capability to help students learn (i.e., teaching self-efficacy) are impactful for a range of student outcomes (Eccles & Roeser, 2009), including increased student achievement (Caprara, Barbaranelli, Steca, & Malone, 2006; Ashton & Webb, 1986). Educators with high self-efficacy for teaching may be better able to motivate students to achieve academically (Bandura, 1993; Bandura & Wessels, 1997; Midgley, Feldlaufer, & Eccles, 1989) or they may create more mastery experiences for their students than educators with low teaching self-efficacy (Bandura, 1993). These benefits may be limited to students who express their gender in traditional or binary ways, as prospective teachers may have low self-efficacy for working with gender diverse students (Brant, 2014, 2017), even over and above the low self-efficacy they report for working with non-heterosexual students. Recent research with prospective teachers suggests that few preservice may feel capable of identifying biases, harmful practices, and harmful school policies related to gender diversity. Similarly, teachers may feel ill prepared to incorporate content related to gender diversity issues in their instructional practices (Brant, 2014, 2017).

The Current Study

The current study aims to fill gaps in the extant literature on gender climate in the context of school via a mixed-methods investigation of teachers' contributions to classroom gender climate in elementary school settings. To explore elementary school teachers' contributions to classroom gender climate, the current study intends to examine the behaviors, activities, and materials engaged in their classrooms, as well as their attitudes toward diverse expressions of gender. Specifically, the current study asks the following research questions:

1. What contributions do elementary teachers make to classroom gender climate?
2. What indirect attitudes do elementary teachers hold about students' diverse expressions of gender, especially related to students' sexual orientation and success in traditionally gender-typed school subjects (i.e., math, science, reading, English/language)? Additionally, do teachers' attitudes vary based on student gender identity and/or teachers' self-reported classroom gender climate?

Further details about the research questions current for this study can be found in the introductory chapter (Chapter I), where a research question alignment table has also been provided (Table 1). In the following chapter, details regarding the methodology for this research are provided.

CHAPTER III

METHODOLOGY

This quantitative, quasi-experimental study investigates how elementary school teachers in the United States contribute to classroom gender climate, through both self-reports and an indirect measure of their attitudes about diverse gender expressions. This chapter provides details about the specific research methods utilized in this research. The chapter begins with a discussion of research ethics and modifications due to the COVID-19 pandemic, followed by a detailed description of participant sampling, recruitment, and demographics. Next, study instrumentation is described in detail, followed by a discussion of the study procedures and stimulus materials. The chapter concludes with an overview of the statistical analyses completed for this research.

Research Ethics, Human Subjects Protection, and COVID-19 Response

As mentioned in chapter one, this research was proposed just prior to the COVID-19-influenced quarantine and social distancing mandates across the United States. At the time of its first proposal, this research included data collection via classroom observation within the state of Indiana, which was contingently approved, depending on the lift of state quarantine mandates, by Ball State University's Institutional Review Board (IRB). The original IRB approval letter is available in Appendix A. As quarantine and social distancing procedures continued into Fall, classroom observations became impossible and unethical given potential spread of COVID-19. Consequently, modifications to this research were proposed to Ball State University's IRB, including online-only data collection and a shift to a national sampling frame. Modifications were approved by the IRB on October 15th, 2020, and data collection began immediately thereafter. The IRB modification approval letter is available in Appendix B.

Participants

A priori power testing using G*Power software revealed the need for a sample size of approximately 215 participants to provide enough power ($\alpha = .05$ and a power level of .80) to detect the largest previously found effect size for predictions of interest ($\eta = .21$; Thomas & Blakemore, 2013). Participants for this study were 299 licensed school teachers who were currently practicing in the United States, teaching Kindergarten, first, second, third, fourth, or fifth grade.

Sampling and Recruitment

Recruitment for this research began prior to changes initiated by the COVID-19 pandemic and consequently occurred in two phases: in-state (pre-quarantine/social distancing) and national. Initially, cluster sampling was employed: participants were recruited via emails to seventy-five (approximately 5% of public elementary schools in the state) elementary school principals from counties randomly selected from all five regions in the state where the study was originally proposed to occur. Contact information for schools and principals were obtained via the state's Department of Education website. The text of the original recruitment email, which asks principals to support both the online data collection and classroom observations, can be found in letter form in Appendix C. Additionally, the recruitment email notified principals of the participant incentive, which was a chance to receive one of 10 $50 Amazon gift cards. In the case of no response from a principal a week beyond the initial recruitment email, a follow up email with similar wording was sent. Principals who allowed participant recruitment for the study at their schools were asked to either write a letter of support for the proposed research or to complete a support letter template (available in Appendix D) written by the primary investigator.

After IRB modifications related to COVID-19, participants were recruited both directly and indirectly (e.g., through school principals, school staff, or other individuals) via email and social media. The modified recruitment script can be found in Appendix E. Email addresses of principals, schools, and teachers were obtained from publicly available lists on state department of education websites (e.g., https://www.doe.in.gov/). The recruitment script was posted and shared at least once weekly by the primary investigator on social media platforms, including Facebook, Instagram, Twitter, and LinkedIn. Many people connected via social networks on these platforms, especially Facebook, shared recruitment posts.

Additionally, Facebook advertising was utilized for four weeks (November 9th through December 6th) near the end of the year to increase sample size. The method of advertising was "post boosting," which entails Facebook adding the solicited post to a target audience's newsfeed feature for an estimated cost. A broad potential audience was targeted using a variety of elementary education-related descriptors (e.g., primary education, elementary education teacher, primary teaching resources, elementary principal, etc.) appearing in Facebook users' listed interests and/or occupations. A full list of target audience descriptors as well as an example Facebook advertisement appear in Figures 3 and 4 below. Per data provided from Facebook, the advertisement was placed on a mobile or desktop screen 49,729 times and an estimated 38,607 people saw the advertisement. Expenses for the campaign totaled $420.

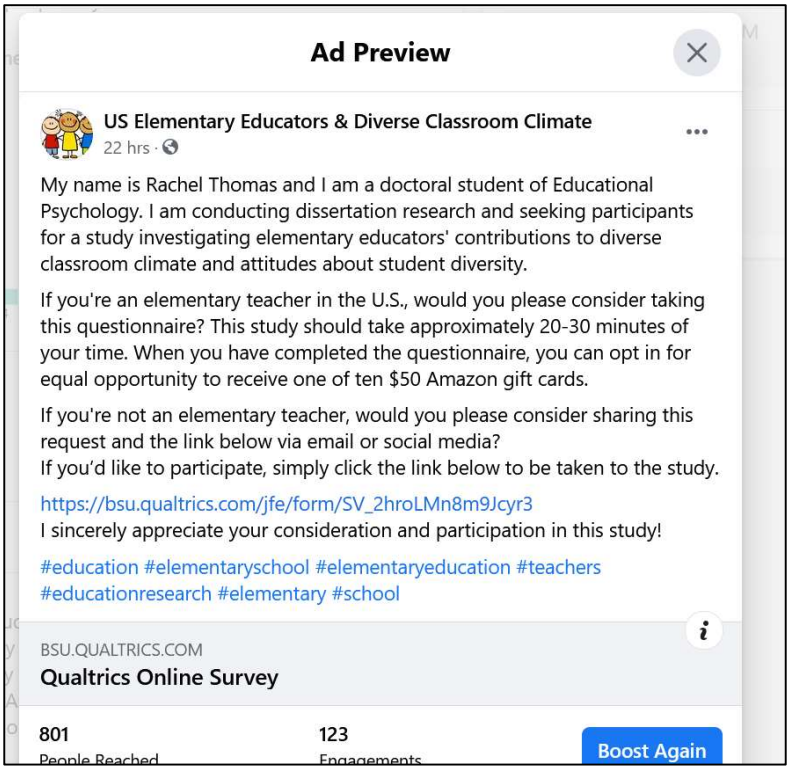

Figure 2: Example Facebook Advertisement Post

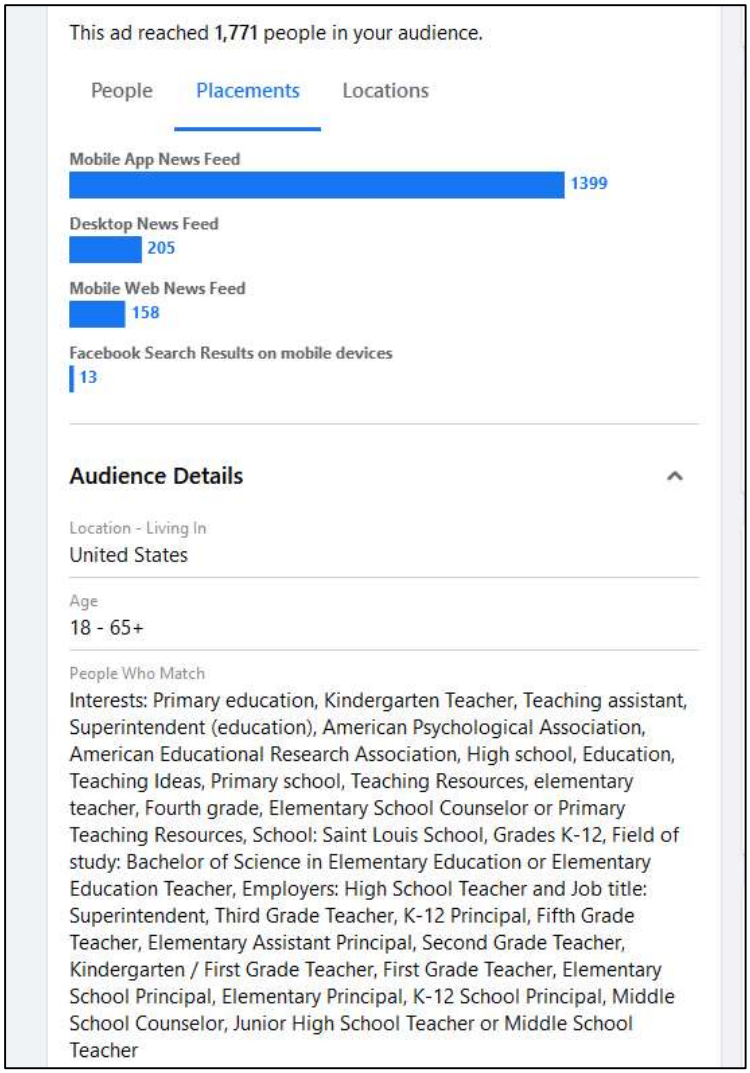

Figure 3: Facebook Advertisement Target Audience Descriptors

Demographics

Participant-Level Demographics

A total of 299 elementary educators participated in this study. The mean age of participants was 39.2 years (*SD* = 11.3, Median = 36). Consistent with demographic statistics reported by the US Department of Education (National Center for Education Statistics, 2019), most participants in this study identified as female (*n* = 231). Approximately 23% (*n* = 67) of participants identified as male, and 1 participant identified as non-binary/genderfluid, but

closeted. Most participants also identified as heterosexual (n = 261); 37 identified as either bisexual/pansexual, gay/lesbian, asexual, or queer. Additionally, most participants reported being married (n = 192) or single (n = 61) and having fewer than 4 children (n = 250). Finally, most participants reported their race/ethnicity as White/Caucasian (n = 244; see Figure 5). Approximately 7% (n = 20) identified as Hispanic/Latinx, 4% (n = 12) identified as Black/African American, 3% (n = 9) identified as Native American/American Indian, and approximately 2% (n = 7) identified as Asian/Pacific Islander. Approximately 2% (n = 7) of participants reported multiple racial/ethnic identities. Details regarding frequencies for participant relationship status, race/ethnicity, and number of children can be found in Figures 4, 5, and 6 below.

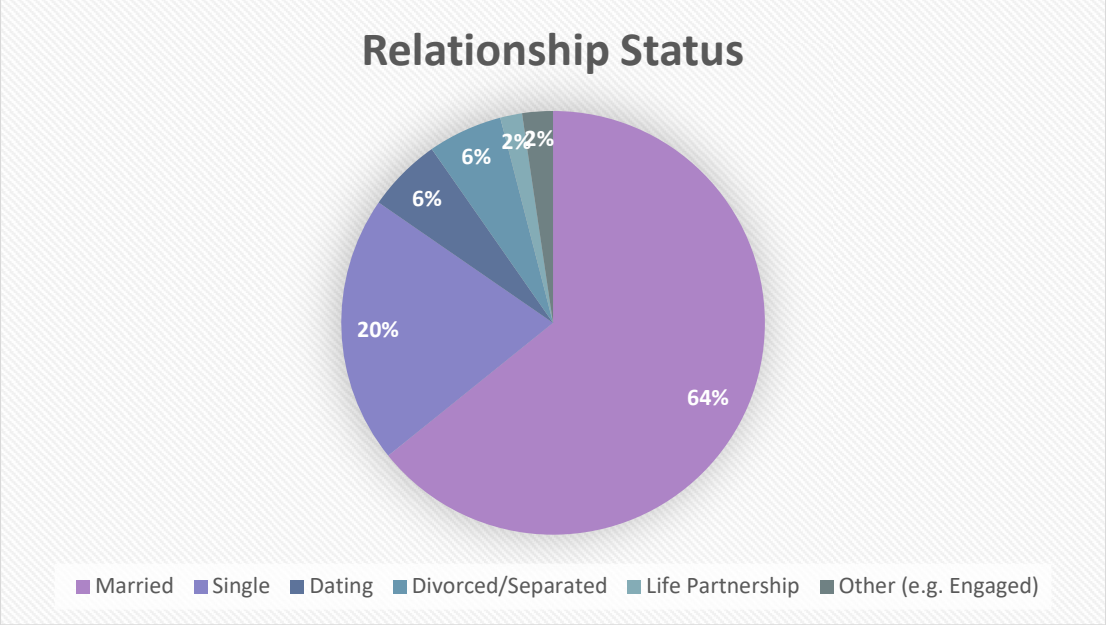

Figure 4: Participants' Reported Relationship Status

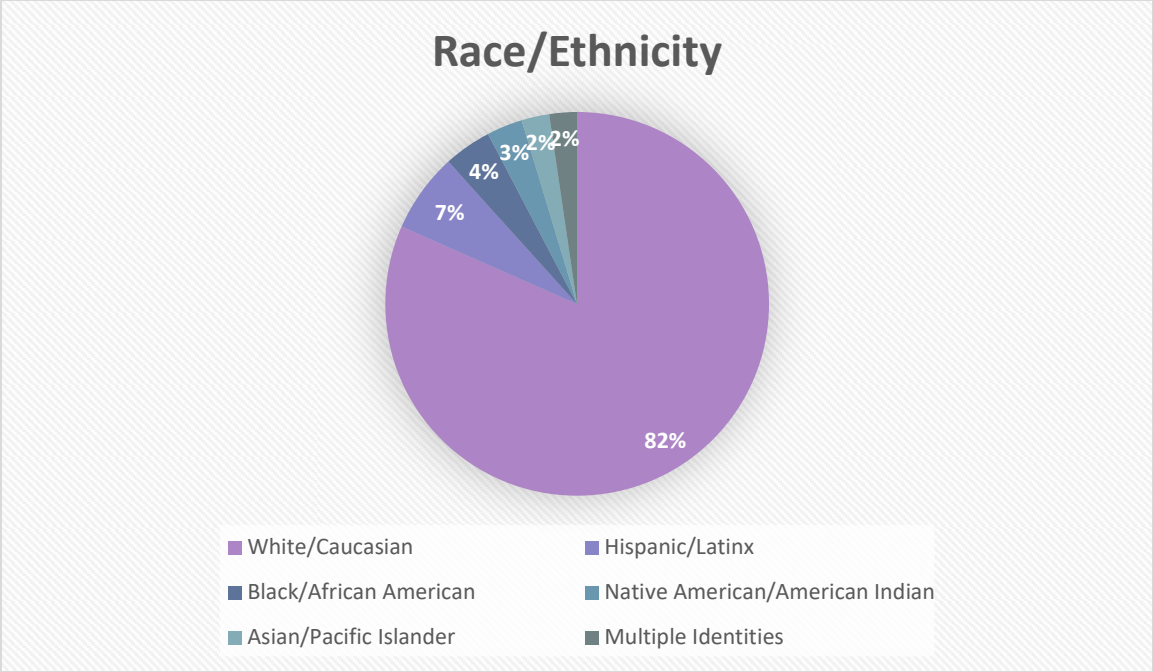

Figure 5: Participants' Reported Race/Ethnicity

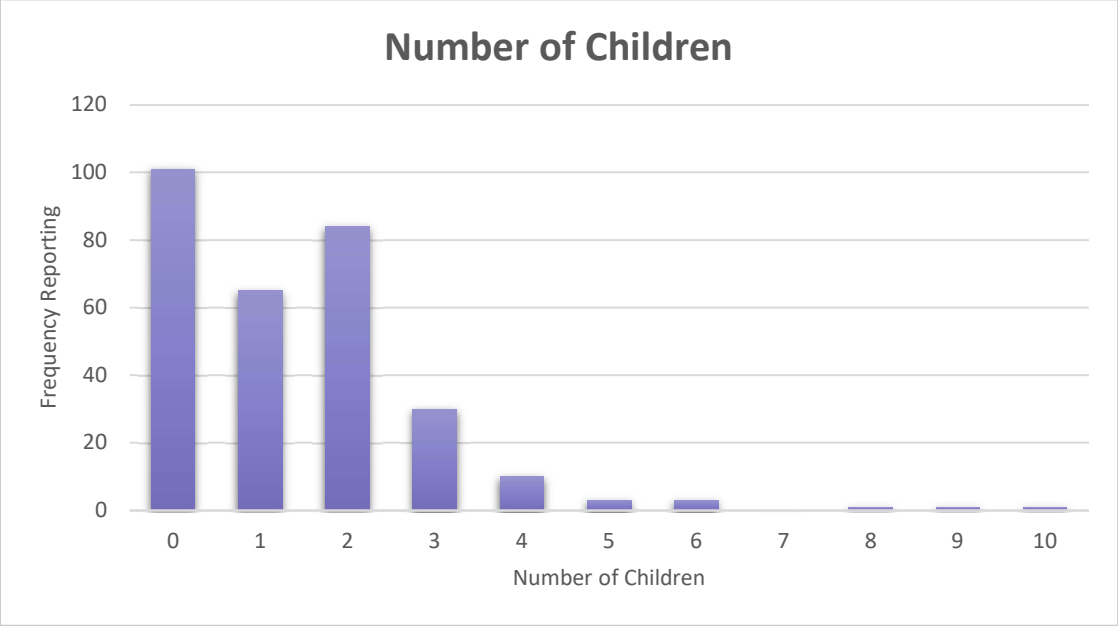

Figure 6: Participants' Reported Number of Children

Participants were distributed across all grades of interest, with most participants (n = 63) teaching third grade (see Figure 7 below). Approximately 9% (n = 28) of participants reported teaching multiple elementary grades. Nearly half of participants (n = 139; 46.5%) reported being

general classroom teachers and the remaining participants reported teaching one or more specialties, including art, music, physical education/health, special education, or a single academic domain (e.g., intermediate reading or math). Most participants had either a bachelor's or master's degree, but approximately 8% held doctorate-level degrees (see Figure 8 below). On average, participants reported nearly 12 years' teaching experience (M = 11.83); however, there was wide variation in this calculation (SD = 9.28) as the distribution was positively skewed (skewness = 1.229; see Figure 9). Participants most commonly reported 4-6 years of teaching experience.

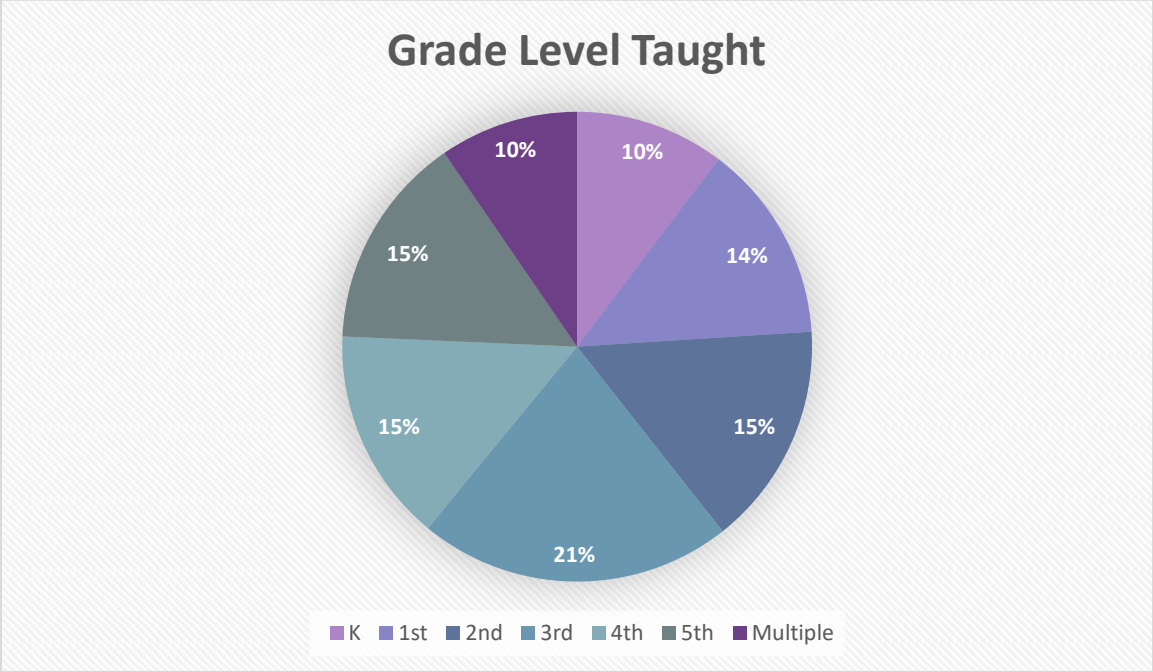

Figure 7: Grade Level Taught by Participants

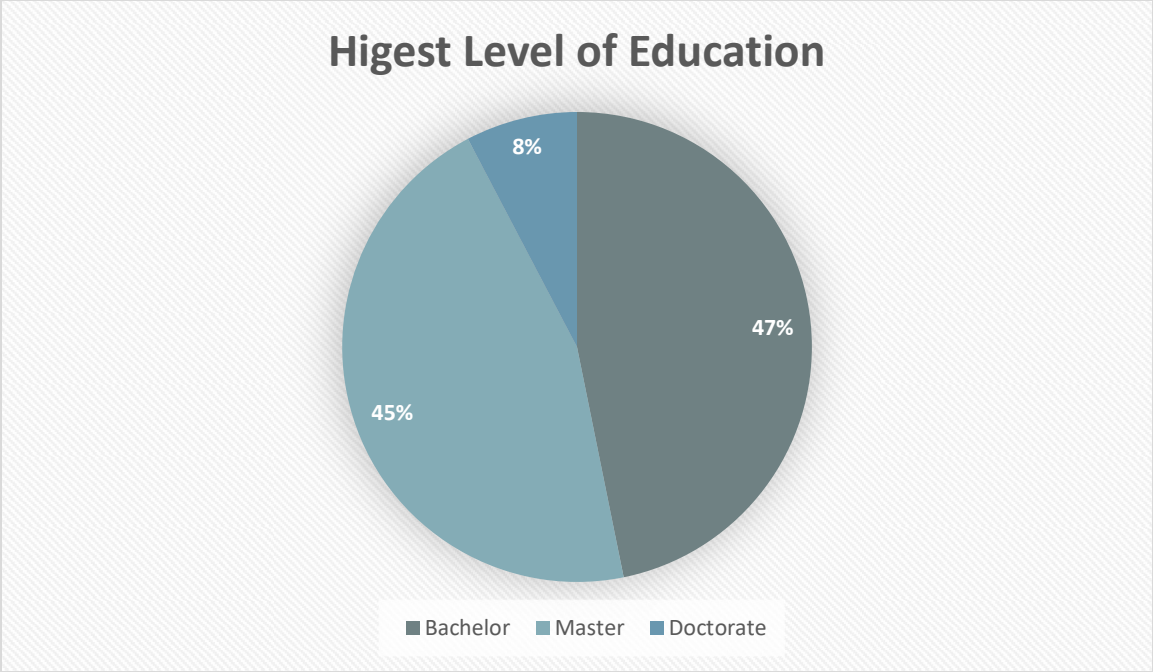

Figure 8: Participants' Reported Highest Level of Education.

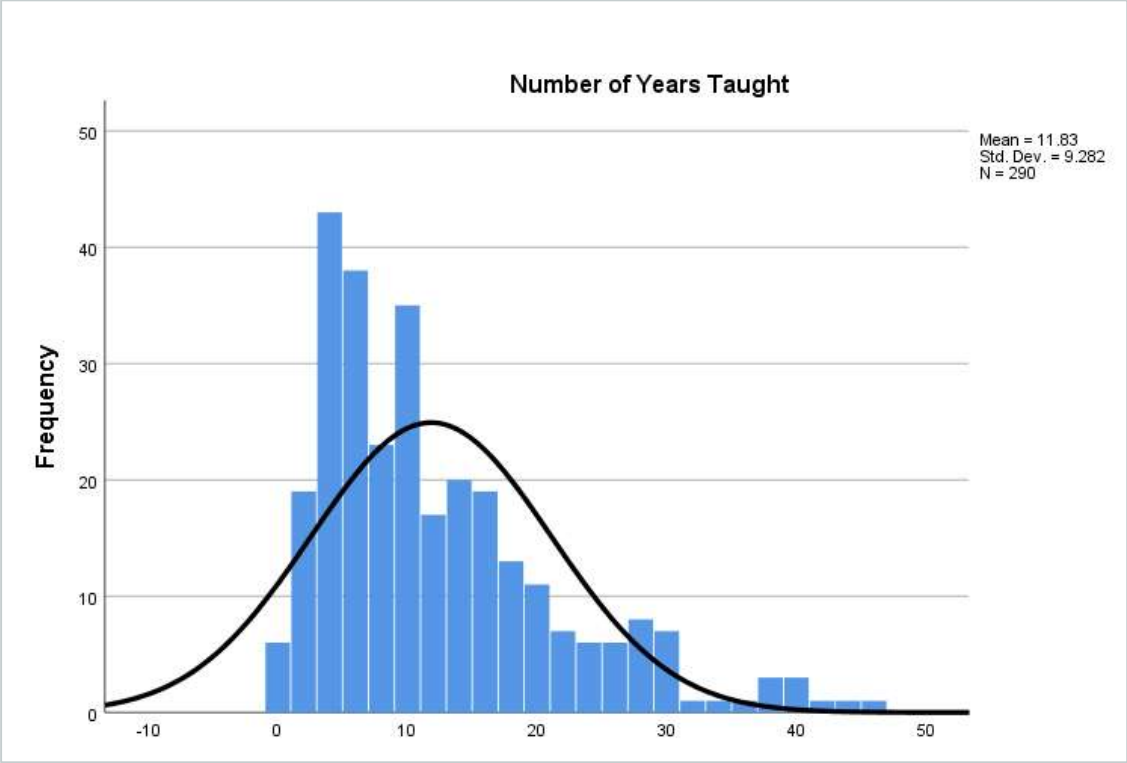

Figure 9: Participants' Years of Teaching Experience

School-Level Demographics

To preserve teacher anonymity and encourage participation, state was used as a proxy for school. Schools from across 44 states and the District of Columbia were represented in data collection. No data were collected from Connecticut, Delaware, Hawaii, Massachusetts, Maryland, or Rhode Island. Most participants (n = 230) reported working in public schools; approximately 23% (n = 68) of participants reported working in private or charter schools. Similarly, approximately 85% (n = 255) of participants reported that their school had no religious affiliation. Approximately 4% (n = 11) of participants worked at a school with a religious affiliation and 11% (n = 33) were unsure whether their school had a religious affiliation or not.

The participant-estimated percentage of students receiving free or reduced lunch (PFRL) from school was utilized as a proxy for the socioeconomic status of schools. The mean reported PFRL was 63.23 (SD = 32.38; skewness = -.368; kurtosis = -1.150; see Figure 10), perhaps indicating low-middle to middle socioeconomic status as characteristic of most schools in the sample. However, many participants (n = 73; 24.4%) reported that all students currently receive free lunch. Several of these participants noted free lunch for all students was not the normal circumstance, but instead due to national-level funding increases for school nutrition programs during the COVID-19 pandemic.

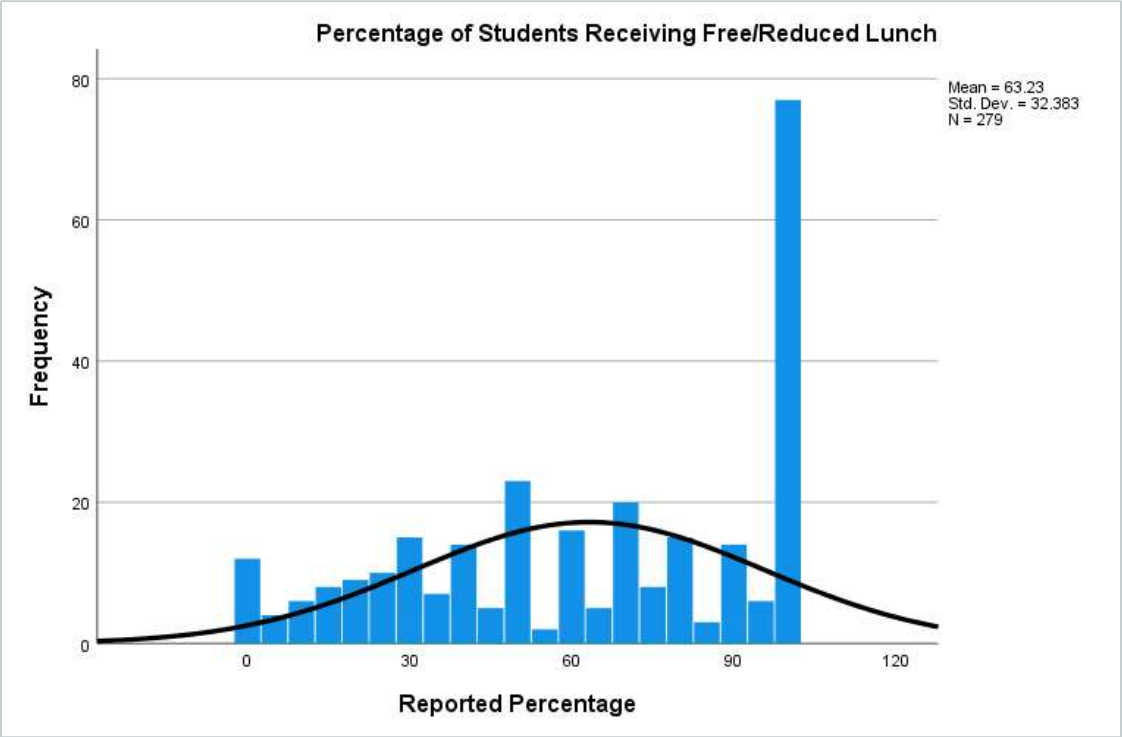

Figure 10: Reported Percentage of Students Receiving Free/Reduced Lunch

Instrumentation

In this section, the various tools used for data collection are described. A complete list of proposed measures can be found in Appendix H at the end of the document.

Demographic Information

Participants were asked to provide their gender (male, female, non-binary/genderqueer, transgender, other), age, relationship status (single, married, divorced/separated, dating, life partnership), number of children, race/ethnicity (white/Caucasian, Hispanic/Latino, black/African American, Native American/American Indian, Asian/Pacific Islander, other), and sexual orientation (heterosexual, bisexual, gay/lesbian, other). Participants were also asked to provide their highest level of education completed, the grade level they were teaching at the time of participation, their number of years' teaching, the state in which their school is located,

whether their school was public, private, or another sector, whether their school had a religious affiliation, and approximately how many students received free or reduced lunch.

Vignette Questionnaire

Manipulation Check

Three items were used to assess the effectiveness of the vignettes in manipulating gender-typicality and nonconformity. Participants were asked to rate how masculine and feminine they thought the target student was on two, 5-point, Likert-style items, where 1 = Not at All Masculine/Feminine and 5 = Extremely Masculine/Feminine (e.g., "To what extent do you think that Michael's personality, interest, and behaviors are masculine?"). Participants were also asked to rate how gender nonconforming or gender typical they thought the target student was on a single, 4-point, Likert-style item, where 1 = Very Typical and 4 = Very Gender Nonconforming (e.g., "To what extent do you think that Michael's personality, behaviors, and interests are typical for someone of his gender?").

Target Sexual Orientation

Participants were asked to predict three domains of the target student's sexual orientation: sexual identity, sexual behavior, and sexual attraction. Predicted sexual identity was measured with a single, 3-point, Likert-style scale, where 1 = Heterosexual, 2 = Bisexual, and 3 = Gay/Lesbian (e.g., "Please predict Michael's sexual orientation."). Predicted sexual behavior and sexual attraction were measured using 5-point Likert-style items with the following scale: 1 = Only Males, 2 = Mostly Males, 3 = Both Males and Females, 4 = Mostly Females, 5 = Only Females. (e.g., "When Michael is old enough to begin to have sexual attractions and feelings, to whom do you predict he will be attracted?"; "When Michael is old enough to begin to have sexual relationships, who do you predict his sexual partner(s) will be?")

Target Academic Performance

Participants were asked to assign the target student a predicted current letter grade (A, B, C, D, or F) in two masculine-typed school subjects (Math, Science) and two feminine-typed school subjects (English/Language and Reading) on a Likert-type scale ("How well do you think Michael/Emily is currently performing in Math/Science/Language/Reading?").

Target Academic Self-Efficacy

Participants were asked to consider how the target student feels about her/his own academic performance, and then asked to predict how capable the target student feels in two masculine-typed (Math, Science) and two feminine-typed (English/Language and Reading) subjects on the following 5-point Likert-type scale: 1 = Not at All Capable, 2 = Somewhat Capable, 3 = As Capable as Any Other Student, 4 = Very Capable, 5 = Extremely Capable.

Classroom Gender Climate

Participants' self-reported classroom gender climate, as indicated by positivity/acceptance of gender diversity (Ullman, 2017) and self-efficacy for engaging in teaching practices related to diverse expressions of gender (Brant, 2014) was assessed with an 8-item measure. Three of the items used were adapted from Ullman's (2017) gender climate scale, which has demonstrated acceptable reliability ($\alpha = .78$). One item from Ullman's (2017) scale that involves sexual orientation was replaced in this study by the following item: "It is okay for students to express their gender in different ways in my classroom." The remaining 5 items on the current study's measure are based on Brant's (2014) measure of self-efficacy for working with LGBTQ+ students, for which previous reliability estimates are not provided. In the current study, wording and items related to sexual orientation were removed from the gender climate scale to avoid conflation of sexuality and gender identity/expression.

Given the potentially controversial nature and consequent potential socially desirable responses, 22 distractor items were added to the gender climate scale. Distractor items were adaptations of the 11 gender climate scale items to include the topics of race/ethnicity and religion (e.g., "I can work with students from a variety of racial/ethnic backgrounds," and "I can identify biases against diverse religious beliefs in teaching materials"). A complete list of distractor items is located in Appendix H.

Procedure

Participation recruitment began after Institutional Review Board approval. As previously described, recruitment occurred in two phases and entailed contacting elementary teachers both directly and indirectly through school principals, via publicly available email lists. Additionally, participants were recruited through advertisement and sharing on social media platforms. Recruitment emails and scripts included links to the questionnaire, which was conducted using Qualtrics software.

At the beginning of the online questionnaire, participants were assured anonymity of their responses. Participants were told that the purpose of the research was to investigate elementary educators' contributions to classroom climate and attitudes about student diversity. No mention of gender diversity was made to avoid potentially biased responses. The informed consent script is available in Appendix F. After consenting to participate and completing a ReCAPTCHA verification (to reduce the likelihood of "bot" participants), participants were asked to provide demographic information. They were then randomly presented with one of 6 vignettes describing a target student (either male or female), whose gendered traits, interests, and behaviors were varied such that the student was either gender non-conforming (e.g., a strongly masculine female), gender-conforming, (e.g., a strongly feminine female) or neutral in gender expression.

After presentation of the vignette, participants were asked to complete a questionnaire containing their predictions about the target student's sexual orientation, as well as achievement and capability beliefs in gender-typed academic domains. Excluding the demographics section, the various prediction measures were presented in random order, as a form of counterbalancing presentation of the items. Finally, participants were asked to complete the gender climate scale with distractor items. These items were randomly presented. Responses were collected after the prediction items to reduce biased responses to the prediction items. After completing all of the gender climate scale items, participants viewed a debriefing script (available in Appendix I) where they were provided with the true purpose of the study. They were also provided a link to another optional Qualtrics survey, where they could anonymously provide their email address to opt in for the incentive (1 of 10 $50 Amazon cards).

Stimulus Materials

The vignettes used in this study were adapted from those created by Thomas and Blakemore (2013), and are available in Appendix G. Thomas and Blakemore (2013) constructed five vignettes each for a male and female target child that varied in gender-typed traits, interest, and behaviors across a continuum of strongly masculine, moderately masculine, neutral, moderately feminine, and strongly feminine. The traits, interests, and behaviors used in each vignette included two personality traits (one positive, one negative), a description of the gender of the target's friends, two activities, two favorite toys, and a career interest. The descriptors of traits, activities, and career interests were previously rated as masculine or feminine by Liben and Bigler (2002) and the toys used were previously rated as masculine or feminine by Blakemore and Centers (2005). A manipulation check with a previous sample provided evidence

that these vignettes represented the gender expression desired, in terms of masculinity/femininity (Thomas & Blakemore, 2013).

In the current study, six of the original ten vignettes were used (Strongly Feminine Boy, Neutral Boy, Strongly Masculine Boy, Strongly Feminine Girl, Neutral Girl, Strongly Masculine Girl), as nonconforming gender expression more generally, rather than the degree of gender nonconformity expressed, is of interest. In the original construction of the vignettes, names for the target child were selected from popular baby names listed on the US Social Security Administration's (SSA) website (www.ssa.gov/oact/babynames). The names Emily and Michael were chosen as they were unambiguously feminine- and masculine-typed, respectively, were neither very popular nor unpopular baby names in the decade prior, and were somewhat traditional. The names Emily and Michael were retained for use in the current study following a check of the SSA's list of popular baby names for 2018 (the most recent year available), which revealed similar popularity. A primary modification of the vignettes for the current study is that the age of the target child was removed and replaced with a note that the target is a student in the participant's classroom.

Data Analysis Plan

The purpose of this study was to explore elementary teachers' contributions to classroom gender climate and attitudes about diverse expressions of gender. Analytical procedures for data cleaning, missing data analysis, demographic data, and the two primary research questions for this study are provided in the sections below.

Data Cleaning and Preliminary Analyses

Prior to conducting analyses for the research questions, data cleaning and missing data analyses were performed. Data cleaning entailed removing ineligible participant responses (those

reporting working in preschools or middle schools, or responses with IP addresses outside the US) and responses with only demographic information. The full set of responses for the questionnaire totaled 414. After removing data from ineligible participants (those reporting working in preschools or middle schools, or responses with IP addresses outside of the U.S.) and incomplete data (e.g., responses with only demographic data), remaining responses totaled 299.

Missing data analysis using IBM Statistical Package for the Social Sciences (SPSS), version 27, revealed less than 10% of data were missing across all variables. After missing data analysis, descriptive analyses were conducted on all demographic variables, including frequencies, measures of central tendency, measures of variability, and normality statistics (skewness and kurtosis). Additionally, histograms and Q-Q plots were visually examined to assess the range and normality of variable distributions. Participants' demographic data is described in detail earlier in this chapter, as well as in Chapter IV.

Research Question 1: What contributions do elementary teachers make to classroom gender climate?

To understand the contributions to classroom gender climate reported by elementary teachers, a series of psychometric, correlational, and descriptive analyses were conducted using IBM SPSS, version 27 and Jamovi (www.jamovi.org), an open-source, point-and-click statistics software that works using R (https://cran.r-project.org/) base code. Psychometric analyses included reliability statistics and an exploratory factor analysis to determine the potential underlying factor structure. Following the psychometric analyses, correlational statistics and group mean comparisons for the relationships between the demographic variables and the gender climate score were conducted. Finally, descriptive analyses were conducted for the gender climate scale as a whole as well as the individual items of the scale. Descriptive analyses

included frequencies, measures of central tendency, measures of variation, and normality statistics.

Research Question 2: What indirect attitudes do elementary teachers hold about students' diverse expressions of gender, especially related to sexual orientation and school performance?

The data collected for this research were nested within two levels: teachers and schools. When data are nested in nature, relationships in the data due to nesting can cause a violation of the assumptions of independence underlying many common analytical procedures (Finch, Bolin, & Kelley, 2014). To avoid increased Type I error rate common with violations of independence caused by nested data structure, multilevel modeling is often the analysis of choice (Raudenbush & Bryk, 2002). Multilevel modeling is especially important when large amounts of variability exist between macro-level units (e.g., schools in the current study) or when little variability exists between individual data cases within the macro-levels (e.g., teachers within each school share similar experiences that differ across schools; Finch et al., 2014). However, when there is little similarity between individual data cases within macro-level groups, as measured by an intraclass correlation (ICC) of 0.05 or lower, the nested nature of the data can be ignored with relatively little impact on Type I error rate inflation (Thomas & Heck, 2001). For the current research, ICCs from null multilevel models for variables of interest were all 0.05 or lower, indicating little variability in responses based on school. Consequently, analyses disregarding the nested nature of the data were utilized.

Three 2 (target gender) × 3 (target expression) factorial analyses of covariance (ANCOVAs) were used to answer research question two. A separate ANCOVA was employed for target sexual orientation prediction, masculine-typed subject success, and feminine-typed

subject success. Multivariate analysis of covariance (MANCOVA) was not used, as differences in the individual outcome variables (predicted sexual orientation, masculine-typed subject success, and feminine-typed subject success) were of primary interest. Assumptions underlying ANCOVA were assessed for all variables of interest prior to or during analyses. ANCOVAs were followed with post-hoc tests using Scheffé's method (1999 [1959]). Additionally, *p* values were adjusted using the Bonferroni correction to account for Type I error rate inflation related to multiple tests (Abdi, 2007).

CHAPTER IV

RESULTS

The purpose of this study was to investigate US elementary teachers' contributions to classroom gender climate and attitudes about students' gender diversity. After data cleaning and preliminary analyses, a series of descriptive and psychometric analyses were conducted to answer research question one. Research question two was answered using a manipulation check, descriptive statistics and a series of three factorial analyses of covariance (ANCOVAs). Further details regarding analyses and results are described in the sections that follow, beginning with a description of data cleaning and preliminary analyses, followed by a description of the results for each research question.

Data Cleaning & Preliminary Analyses

Prior to conducting analyses for the research questions, data cleaning and missing data analyses were performed. The full set of responses for the questionnaire totaled 414. After removing data from ineligible participants (those reporting working in preschools or middle schools, or responses with IP addresses outside of the U.S.) and incomplete data (e.g., responses with only demographic data), remaining responses totaled 299.

Missing data analysis using IBM Statistical Package for the Social Sciences (SPSS), version 27, revealed less than 6% missing demographic data, and less than 4% missing of most outcome data. Missing data percentages on the gender climate scale variables ranged from 7% to 9%. Listwise deletion was used for further analyses. After missing data analysis, descriptive analyses were conducted on all demographic variables, including frequencies, measures of central tendency, measures of variability, and normality statistics (skewness and kurtosis). Additionally, histograms and Q-Q plots were visually examined to assess the range and

normality of variable distributions. Demographic results for the sample are reported in Table 2 below. Demographic information is also depicted visually in Chapter III.

Table 2: Sample Demographic Statistics

Demographic Category	*Mean*	*Frequency*	*Valid Percentage*
Age	39.2 *SD* 11.3 Range 22-68		
Gender			
Female		231	77.3
Male		67	22.4
Non-Binary		1	0.3
Race/Ethnicity			
White		244	81.6
Hispanic/Latinx		20	6.7
Black/African American		12	4.0
Native American/American Indian		9	3.0
Asian/Pacific Islander		7	2.3
Multiracial/Multiethnic		7	2.3
Sexual Orientation			
Heterosexual		261	87.6
Bisexual/Pansexual		14	4.7
Gay/Lesbian		10	3.4
Asexual		8	2.7
Unspecified		5	1.7
Relationship Status			
Married		192	64.2
Single		61	20.4
Dating		17	5.7
Divorced/Separated		17	5.7
Engaged or Unspecified		7	2.3
Life Partnership		5	1.7
Highest Level of Education			
Bachelor		140	46.8
Master		136	45.5
Doctorate		23	7.7
Grade Taught			
K		30	10.3
1		40	13.7
2		45	15.4

	3	63	21.6
	4	43	14.7
	5	43	14.7
	Multiple	28	9.6
Specialty			
	None	139	46.5
	Art	41	13.7
	Music	29	9.7
	PE/Health	9	3.0
	Special Education	45	15.1
	Multiple	36	12.0
School Sector			
	Public	230	77.2
	Private/Charter	68	22.8
School SES (% Free/Reduced Lunch)	63.23 *SD* 32.4		

Research Question 1: What Contributions Do Elementary Teachers Make to Classroom Gender Climate?

To understand the contributions to classroom gender climate reported by elementary teachers, a series of psychometric and descriptive analyses were conducted. These are described in detail in the sections below.

Psychometric Analyses of Gender Climate Scale

The gender climate scale designed for this research entailed 11 Likert-style items adapted from the work of Ullman (2017) and Brant (2014). The first 3 items involved acceptance and positivity (modified from Ullman, 2017) and the remaining 8 items focused on teachers' self-efficacy for engaging inclusive pedagogy with students of diverse gender identities (adapted from Brant, 2014). More details about these items can be found in Chapter III.

Reliability analyses provided evidence for acceptable reliability of the gender climate scale, Cronbach's $\alpha = .850$, McDonald's $\omega = .854$. Removing any of the items from the scale would have maintained or decreased reliability estimates, apart from 2 positivity/acceptance

items. As can be seen in Table 3, removing items 2 (“If a student bullied”…) or 3 (“It is okay…) would have only slightly increased reliability estimates. Therefore, no items were removed from the scale.

Table 3: Gender Climate Scale Item Reliability Estimates

		if item dropped	
	Item-Rest correlation	**Cronbach's α**	**McDonald's ω**
1. It is okay for people to express their gender in different ways.	0.383	0.848	0.854
2. If a student in my classroom made fun of another about the way they express their gender, I would defend the bullied student.	0.208	0.860	0.863
3. It is okay for students to express their gender in different ways in my classroom.	0.333	0.851	0.856
4. I can work with students who are gender nonconforming, gender fluid/genderqueer, or transgender.	0.635	0.829	0.834
5. I can work with students’ parents who are gender nonconforming, gender fluid/genderqueer, or transgender.	0.616	0.831	0.836
6. I can implement instructional activities to reduce prejudice about gender nonconforming, gender fluid/genderqueer, and transgender people in my classroom.	0.645	0.827	0.833
7. I can identify biases against gender nonconforming, gender fluid/genderqueer, or transgender people in teaching materials.	0.688	0.824	0.828
8. I can develop instructional methods that dispel myths about gender nonconforming, gender fluid/genderqueer, or transgender people.	0.571	0.834	0.839
9. I can analyze instructional materials for potential stereotypical and/or prejudicial content to those who identify as gender nonconforming, gender fluid/genderqueer, or transgender.	0.635	0.829	0.833

Table 3: Gender Climate Scale Item Reliability Estimates

		if item dropped	
	Item-Rest correlation	**Cronbach's α**	**McDonald's ω**
10. I can identify school practices that may be harmful for those who identify as gender nonconforming, gender fluid/genderqueer, or transgender.	0.618	0.830	0.835
11. I can defend students who are bullied or teased for expressing their gender in nonconforming/non-traditional ways.	0.515	0.839	0.844

To determine whether positivity/acceptance items and self-efficacy items were perceived significantly differently by participants, exploratory factor analyses using principal axis factoring and a variety of rotations and possible solutions were conducted. Results provided evidence for moderate fit of a 3-factor model encompassing (a) items related to self-efficacy for instructional practices, (2) items related to self-efficacy for working with students and families, and (3) positivity/acceptance items, $\chi^2(25) = 46.5$, $p = .006$; RMSEA = .0564, CI[.03, .082]; TLI = .964. Factor loadings for each item can be seen in Table 4 below. Due to weak model fit and the lack of predetermined hypotheses regarding factor structure of the gender climate scale, gender climate scores were calculated as simple mean scores of all 11 items.

Table 4: Factor Loadings for Gender Climate Scale

	Factor			
	1	**2**	**3**	**Uniqueness**
I can develop instructional methods that dispel myths…	0.923			0.328
I can analyze instructional materials for potential stereotypical/prejudicial content…	0.815			0.265
I can implement instructional activities to reduce prejudice…	0.801			0.364
I can identify biases in teaching materials…	0.661			0.316

Table 4: Factor Loadings for Gender Climate Scale

	Factor			
	1	**2**	**3**	**Uniqueness**
I can identify school practices that may be harmful…	0.608			0.503
I can work with students…		0.813		0.309
I can work with students' parents…		0.736		0.383
I can defend students who are bullied or teased…		0.686		0.529
It is okay for students to express their gender in different ways in my classroom.			0.812	0.333
It is okay for people to express their gender in different ways.			0.802	0.369
I would defend a bullied student in my classroom…			0.433	0.774

Note. 'Principal axis factoring' extraction method was used in combination with a 'promax' rotation. Items followed by ellipses represent a summarized description of the item wording.

Descriptive Analyses of Gender Climate Scale

Gender climate scores were measured on a Likert-style scale where 1 represented the least agreement or perceived capability and 5 represented the strongest agreement or perceived capability. Descriptive statistics are presented in Table 5 below. The mean gender climate scale across all participants was 4.07, *SD* = .60. The distribution of gender climate scores deviated slightly from normality, Shapiro-Wilk W = .968, $p < .001$, kurtosis = -.116, skewness = -.523. Mean scores ranged from 2.18 to 5.00, indicating that very few participants reported rejection of students with diverse gender identities or low-self efficacy for engaging inclusive pedagogy.

Table 5: Descriptive Statistics for Gender Climate Score

	Gender Climate Score
N	278
Missing	21

Table 5: Descriptive Statistics for Gender Climate Score

	Gender Climate Score
Mean	4.07
Median	4.18
Standard deviation	0.603
Minimum	2.18
Maximum	5.00
Skewness	-0.523
Std. error skewness	0.146
Kurtosis	-0.116
Std. error kurtosis	0.291
Shapiro-Wilk W	0.968
Shapiro-Wilk p	< .001

To explore potential impacts of school- or participant-level demographic variables, bivariate correlations (Pearson's *r*) between continuous demographic variables and the gender climate scale scores were conducted. For categorical variables (gender, race/ethnicity, relationship status, education level, teaching specialty, school sector) group means were compared via t-test or analysis of variance (ANOVA). The Bonferroni correction was applied to account for potential Type I error inflation due to multiple testing, resulting in an alpha level of .008. Participant-level demographic variables included age, gender, race/ethnicity, relationship status, number of children, education level, years of teaching experience, and teaching specialty. School-level demographic variables included school sector (private or public) and school socioeconomic status, as measured by the estimated percent of students eligible for free or reduced lunch through government programs.

There were no significant correlations between any of the continuous demographic variables (age, number of children, years teaching, percent of students eligible for free/reduced lunch) and gender climate scores. Additionally, there were no significant differences in gender climate scores across groups by race/ethnicity [$t(276) = .823$, $p = .411$], gender [Mann-Whitney U = 6836, $p = .823$], relationship status [$F(1, 109) = .422$, $p = .517$], education level [$F(2, 274) = .169$, $p = .845$], teaching specialty [$F(1, 274) = .277$, $p = .599$], or school sector [$t(274) = .0656$, $p = .948$]. These results suggest that regardless of a variety of potential identities and experiences, participants tended to report acceptance of students' diverse gender identities/expressions and self-efficacy for creating inclusive classroom gender climates.

To further analyze responses to individual items, descriptive statistics for each item were conducted. The distribution of scores for individual items were all negatively skewed to varying degrees, indicating higher frequencies of agreement/positivity and perceived capability. Normality statistics can be found in Table 6 below.

Table 6: Descriptive Statistics for Gender Climate Scale Items

	Item Number ǂ										
	1	2	3	4	5	6	7	8	9	10	11
N	278	277	278	272	272	271	272	272	271	272	272
Missing	21	22	21	27	27	28	27	27	28	27	27
Mean (SD)	4.44 (.82)	4.57 (.87)	4.37 (.87)	4.18 (.95)	4.22 (.90)	3.64 (1.08)	3.77 (1.03)	3.56 (1.1)	3.76 (.95)	3.74 (1.01)	4.36 (.81)
Median	5	5	5	4	4	4	4	4	4	4	5
Mode	5	5	5	5	5	4	4	3	4	4	5
Skewness	-1.7	-2.4	-1.4	-1.1	-1.0	-.61	-.65	-.43	-.41	-.61	-1.3
Kurtosis	2.9	5.6	1.8	.90	.85	-.16	.02	-.42	-.34	-.08	1.5

Shapiro Wilk W	.69*	.56*	.72*	.79*	.79*	.88*	.87*	.89*	.88*	.88*	.75*

Note: ǂComplete item descriptions can be found in Table 3. *$p < .001$.

Details about individual items were further explored via frequency counts for each item. As aligned with the negative skew of item distributions, most participants reported a score of 5 for all items, indicating high acceptance/positivity toward gender diversity and perceived capability for creating inclusive classroom gender climates. However, for items 6 through 10, the distribution of responses was less negatively skewed in that more participants reported lower scores. Frequencies for each item are illustrated in Figure 11 below. Compared to other methods for contributing to inclusive gender climates as measured by the GCS, fewer participants felt capable of identifying biases against gender diversity in teaching materials, developing and implementing instructional activities to reduce prejudice or dispel myths about people with diverse gender identities, and identifying school practices potentially harmful to students of diverse gender identities/expressions.

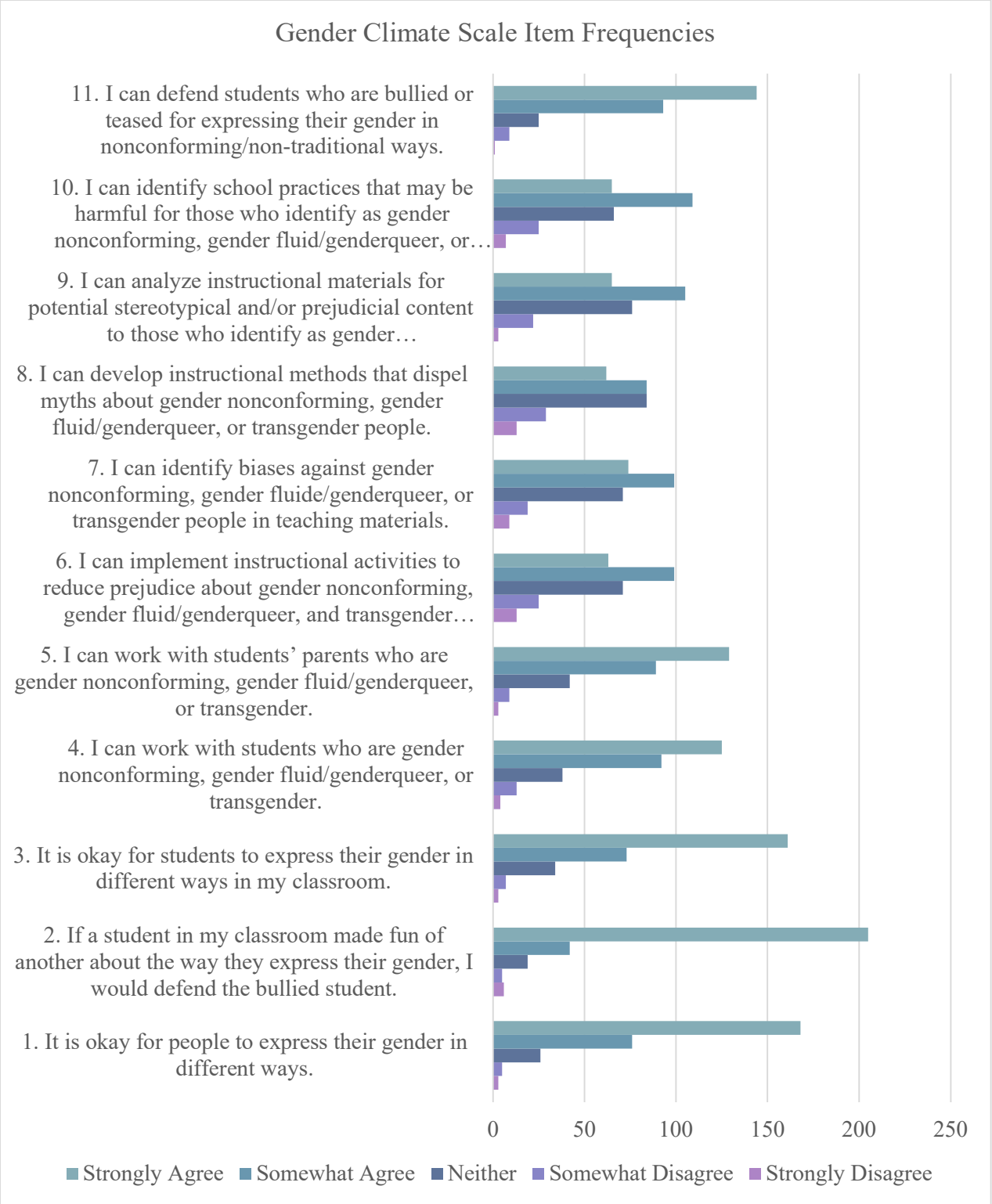

Figure 11: Gender Climate Scale Item Frequencies

Research Question 2: What Indirect Attitudes Do Elementary Teachers Hold about Students' Diverse Expressions of Gender?

As mentioned previously in Chapter III, data collected for this research were nested within two levels: teachers and schools. When data are nested in nature, relationships in the data due to nesting can cause a violation of the assumptions of independence underlying many common analytical procedures (Finch, Bolin, & Kelley, 2014). To avoid increased Type I error rate common with violations of independence caused by nested data structure, multilevel modeling is often the analysis of choice (Raudenbush & Bryk, 2002). Multilevel modeling is especially important when large amounts of variability exist between macro-level units (e.g., schools in the current study) or when little variability exists between individual data cases within the macro-levels (e.g., teachers within each school share similar experiences that differ across schools; Finch et al., 2014). However, when there is little similarity between individual data cases within macro-level groups, as measured by an intraclass correlation (ICC) of 0.05 or lower, the nested nature of the data can be ignored with relatively little impact on Type I error rate inflation (Thomas & Heck, 2001). For the current research, ICCs from null multilevel models for variables of interest were all 0.05 or lower, indicating little variability in responses across schools. Consequently, analyses disregarding the nested nature of the data were utilized to explore research question two.

Manipulation Check

Condition manipulations were assessed via 3 items asking how masculine, how feminine, and how gender typical participants perceived the target student to be. These items can be found in Appendix H. A series of 2 (target gender) × 3 (target expression) factorial ANOVAs were conducted to investigate the effects of the vignette manipulations. The Bonferroni correction for

multiple tests was applied, which decreased the alpha level to 0.017. All assumptions of ANOVA (independence, normality, linearity, and homogeneity of variance) were assessed prior to or while conducting analyses. With the exception of slight variations in normality (platykurtic distributions for perceived femininity (kurtosis = -1.05) and masculinity (kurtosis = -.95), all assumptions of ANOVA were met.

The results for manipulation check ANOVAs are presented in Table 7. The first 2 (target gender) × 3 (target expression) factorial ANOVA on perceived masculinity was significant, $F(5, 286) = 32.292$, $p < .001$. There were significant main effects of target gender identity [$F(1, 286) = 106.2$, $p < .001$, $\eta^2 = .238$, $\omega^2 = .235$] and target expression [$F(2, 286) = 25.32$, $p < .001$, $\eta^2 = .114$, $\omega^2 = .109$]. The interaction between target gender identity and target expression was not significant when considering the corrected alpha value of 0.017, $F(2, 286) = 4.043$, $p = .019$. Post-hoc comparisons using Scheffé's correction method revealed that male target students were perceived as significantly more masculine than female target students, $t(281) = 10.3$, $p < .001$, Cohen's d = 1.22. Masculine targets were also perceived as more masculine than either feminine [$t(281) = 4.42$, $p < .001$, Cohen's d = .653] or neutral [$t(281) = 7.06$, $p < .001$, Cohen's d = 1.017] targets. Neutral target students were perceived as the least masculine (M = 2.16).

Table 7: Manipulation Check Models (ANOVAs)

	Sum of Squares	**df**	**Mean Square**	**F**	**p**	**η^2**	**ω^2**
Perceived Masculinity							
Overall Model	151.46	5	30.292	32.8	< .001		
Target Gender	97.53	1	97.531	106.2	< .001	.238	.235
Target Expression	46.50	2	23.252	25.32	< .001	.114	.109
Target Gender * Target Expression	7.43	2	3.713	4.04	.019	.018	.014

Table 7: Manipulation Check Models (ANOVAs)

	Sum of Squares	df	Mean Square	F	p	η²	ω²
Residuals	258.06	281	.918				
Perceived Femininity							
Overall Model	121.3541	5	24.2708	22.1705	<.001		
Target Gender	18.2702	1	18.2702	16.0566	<.001	.041	.039
Target Expression	103.0094	2	51.5047	45.2644	<.001	.234	.228
Target Gender * Target Expression	.0745	2	.0372	.0327	.968	.000	-.005
Residuals	317.7395	281	1.1379				
Perceived Gender Typicality							
Overall Model	38.551	5	7.710	11.02	<.001		
Target Gender	.478	1	.478	.717	.398	.002	-.001
Target Expression	12.173	2	6.087	9.123	<.001	.054	.048
Target Gender * Target Expression	25.900	2	12.950	19.409	<.001	.114	.108
Residuals	188.150	282	.0667				

The 2 (target gender) × 3 (target expression) factorial ANOVA on perceived femininity was significant, $F(5, 286) = 22.171$, $p < .001$. Similarly to perceived masculinity, there were significant main effects of target gender identity [$F(1, 286) = 16.057$, $p < .001$, $\eta^2 = .041$, $\omega^2 = .039$] and target gender expression [$F(2, 286) = 45.264$, $p < .001$, $\eta^2 = .234$, $\omega^2 = .228$], but no significant interaction between the two, $F(2, 286) = .033$, $p = .968$, , $\eta^2 = .00$. Post-hoc comparisons using Scheffé's correction method revealed that female target students were

perceived as significantly more feminine than male target students, $t(281) = -4.01$, $p < .001$, Cohen's d = -0.475. Masculine target students were perceived as significantly less feminine than feminine target students [$t(281) = -2.68$, $p = .029$, Cohen's d = -.396] or neutral target students [$t(281) = -9.21$, $p < .001$, Cohen's d = -1.323]. Interestingly, neutral target students, regardless of gender identity, were perceived as the most feminine, M = 3.49.

Finally, the 2 (target gender) × 3 (target expression) factorial ANOVA on perceived gender typicality was significant, $F(5, 287) = 11.02$, $p < .001$. There was no significant effect of target gender identity, $F(1, 287) = .717$, $p = .398$, $\eta^2 = .002$. However, there was a significant effect of target gender expression [$F(2, 287) = 9.123$, $p < .001$, $\eta^2 = .054$, $\omega^2 = .048$], as well as a significant interaction between target gender identity and expression, $F(2, 287) = 19.409$, $p < .001$, $\eta^2 = .114$, $\omega^2 = .108$. Adjusted means and the interaction plot for perceived typicality scores are displayed in Table 8 and Figure 12 below. Post-hoc comparisons using Scheffé's correction method revealed interesting significant differences between conditions, as displayed in Table 9 below, which uses compact letter display (CLD) grouping to denote significant differences.

Based upon previous research (Thomas & Blakemore, 2013), it was anticipated that vignette characters whose gender identity and gender expression aligned (e.g., strongly masculine males and strongly feminine females) would be perceived as more gender typical than those whose gender identity and gender expression were varied (e.g., strongly feminine males and strongly masculine females). This expectation was partially supported in the case of female target students. However, this expectation was not supported in the case of male target students. Neutral male target students (M = 2.35), rather than feminine male target students (M = 3.23), were perceived as more gender non-conforming than target students from any other condition except for masculine female target students, $t(282) = 2.091$, $p = .498$, Cohen's d = 0.434. These

findings align with the previous manipulation check analysis and suggest that participants may have perceived the neutral male target student as more feminine than other conditions. Taken together, manipulation check analyses suggest a failure of the conditions to operate as intended, where neutral targets were expected to be perceived as neither masculine nor feminine, or have an expression assigned to them based on their gender identity. Implications of these findings are discussed further in Chapter IV.

Table 8: Adjusted Means for Perceived Gender Typicality

				95% Confidence Interval	
Target Expression	**Target Gender**	**Mean**	**SE**	**Lower**	**Upper**
Masculine	Male	3.34	0.123	3.10	3.58
	Female	2.70	0.119	2.47	2.94
Neutral	Male	2.35	0.120	2.11	2.58
	Female	3.17	0.107	2.96	3.38
Feminine	Male	3.23	0.118	3.00	3.46
	Female	3.29	0.122	3.05	3.53

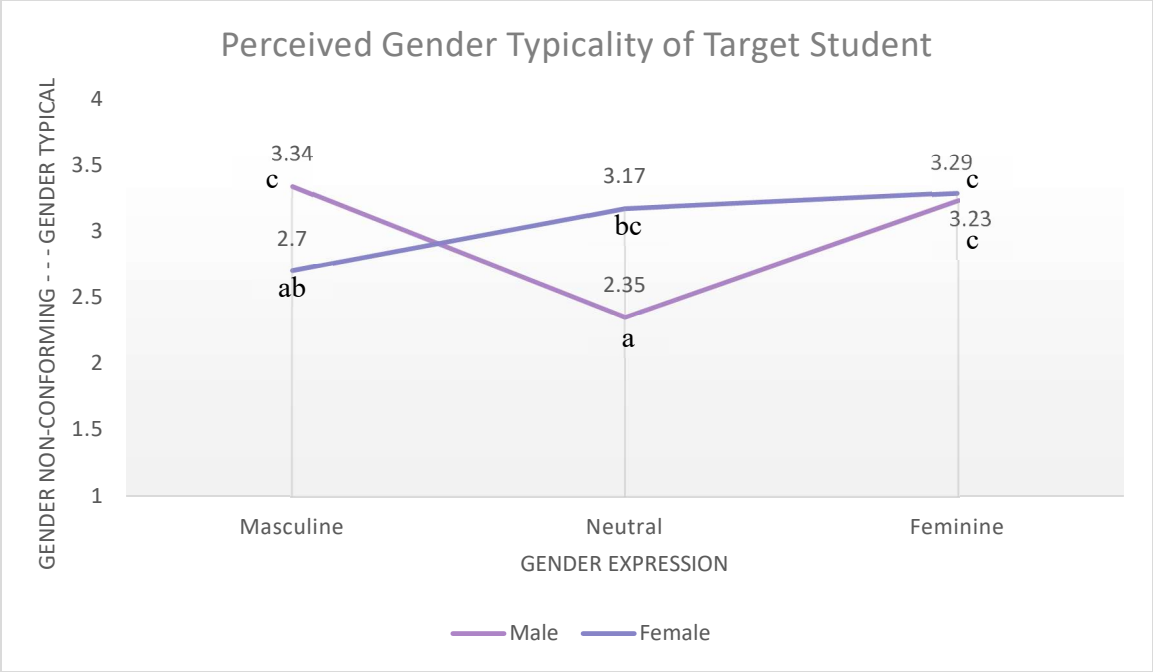

Figure 12: Manipulation Check – Perceived Gender Typicality

Table 9: Post-Hoc Significance of Perceived Gender Typicality by Condition Using Compact Letter Display (CLD)

Condition	Mean	Post-Hoc CLD Grouping
Neutral Male	2.35	a
Masculine Female	2.70	ab
Neutral Female	3.17	bc
Feminine Male	3.23	c
Feminine Female	3.29	c
Masculine Male	3.34	c

Sexual Orientation

A 2 (target gender) × 3 (target expression) factorial ANCOVA was conducted to determine whether participants associated various gender identities and expressions with certain sexual orientations, controlling for the potential impact of their contributions to gender climate. Covariate and independent variable interaction checks provided evidence that the assumption of homogeneity of regression slopes was met. Additionally, the assumption of heterogeneity of variances was met, $F(5, 271) = 1.99$, $p = .081$. The sexual orientation items also demonstrated acceptable reliability, Cronbach's $\alpha = .831$, McDonald's $\omega = .865$.

The overall model was significant, $F(6, 270) = 14.28$, $p < .001$. Model statistics are available in Table 10 below. Gender climate scores did not vary with sexual orientation predictions, $F(1, 270) = 2.13$, $p = .146$, $\eta^2 = .006$, $\omega^2 = .003$). After accounting for the variance explained by the gender climate score, both target gender [$F(1, 270) = 8.18$, $p = .005$, $\eta^2 = .023$, $\omega^2 = .02$] and target expression [$F(2, 270) = 11.81$, $p < .001$, $\eta^2 = .067$, $\omega^2 = .061$] had significant main effects. These main effects were qualified by a significant interaction between target gender and expression that explained approximately 14% of the variance in target student sexual orientation predictions, $F(2, 270) = 25.35$, $p < .001$, $\eta^2 = .143$, $\omega^2 = .137$.

Table 10: ANCOVA Results for Sexual Orientation Predictions

	Sum of Squares	df	Mean Square	F	p	η²	ω²
Overall model	15.884	6	2.647	14.28	< .001		
Target Expression	4.434	2	2.217	11.81	< .001	0.067	0.061
Target Gender	1.536	1	1.536	8.18	0.005	0.023	0.020
Gender Climate Score	0.399	1	0.399	2.13	0.146	0.006	0.003
Target Expression * Target Gender	9.516	2	4.758	25.35	< .001	0.143	0.137

Table 10: ANCOVA Results for Sexual Orientation Predictions

	Sum of Squares	df	Mean Square	F	p	η^2	ω^2
Residuals	50.673	270	0.188				
Total	739.444	277					
Corrected Total	66.751	276					

As illustrated in Figure 13 below, sexual orientation predictions followed the hypothesized pattern for female target students, where gender conforming vignette targets (female, feminine) were the least expected to have a non-heterosexual orientation (M = 1.38), and gender nonconforming (strongly masculine) female targets were the most expected to have a non-heterosexual orientation (M = 1.68). However, post-hoc comparisons using Scheffé's correction revealed that mean scores for female target students were not significantly different across gender expressions. Adjusted mean scores are available in Table 11. Regardless of the target student's gender expression, participants expected female targets to have mostly heterosexual orientations.

The pattern of predictions differed from the expected outcomes for male vignette targets, however. Both masculine and feminine male targets were predicted to have relatively heterosexual orientations (M = 1.43 for both conditions), whereas male neutral targets were expected to have non-heterosexual orientations (M = 2.04), significantly more so than any other target character.

Table 11: Adjusted Means for Sexual Orientation Predictions

				95% Confidence Interval	
Target Expression	**Target Gender**	**Mean**	**SE**	**Lower**	**Upper**
Masculine	Male	1.43	0.0707	1.40	1.68
	Female	1.68	0.0713	1.65	1.93
Neutral	Male*	2.04	0.0676	1.99	2.26
	Female	1.39	0.0671	1.36	1.63
Feminine	Male	1.43	0.0688	1.39	1.66
	Female	1.38	0.0695	1.34	1.61

* significant at p <.001 from all other conditions except masc. female (p = .009)

Post-Hoc comparisons using Scheffé's correction method revealed significant differences only between the neutral male condition and all other conditions. The interaction plot is available in Figure 13 below. The neutral male target student was most frequently predicted to have a non-heterosexual orientation, and this difference was significant relative to every other condition. Given that participants rated neutral targets as the most feminine and the male neutral target as the most gender non-conforming of any of the conditions, these results suggest that participants expected gender non-conforming (i.e., feminine) male target students to be most likely to have a non-heterosexual orientation.

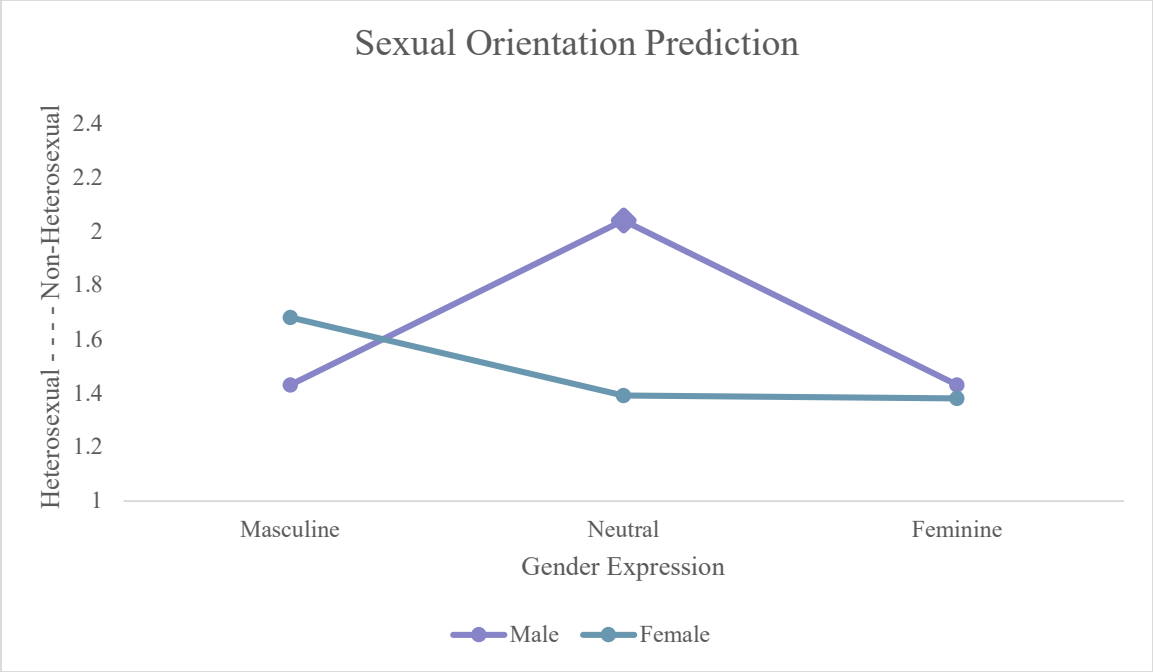

Figure 13: Predicted Sexual Orientation Varying by Target Gender Identity and Target Gender Expression

Success in Traditionally Masculine-Typed Subjects

To explore participants' attitudes regarding gender diversity and school-related outcomes, participants were asked to assign the target student a letter grade and predict the student's academic self-efficacy for traditionally masculine-typed school subjects (math and science). Masculine-typed school success scores were created by calculating the means of grade assignment scores and self-efficacy predictions for science and math. The items demonstrated acceptable reliability, Cronbach's $\alpha = .756$, McDonald's $\omega = .759$. Masculine success scores ranged from 2 to 5, where higher scores indicated more success in traditionally masculine-typed school subjects. The mean masculine success score was 3.58, SD = .67. The distribution of masculine success scores was slightly platykurtic (kurtosis = -.282) but not impactfully skewed (skewness = .03). Visual inspection of a histogram and Q-Q plot provided support that masculine

success scores approximated a normal distribution and were unlikely to impact subsequent analyses.

A 2 (target gender) × 3 (target expression) factorial ANCOVA was conducted to determine whether participants associated various gender identities and expressions with success in traditionally masculine-typed school subjects, controlling for the potential impact of gender climate score. No other demographic variables were assumed likely to impact responses for this outcome. The assumption of homogeneity of variances was met, $F(5, 272) = .468$, $p = .80$. Additionally, homogenous regressions slopes existed for all covariates.

The overall model was significant, $F(6, 277 = 4.894$, $p < .001$. Model statistics are provided in Table 12 below. Gender climate scores varied significantly with masculine success scores, such that participants who created more inclusive classroom gender climates predicted higher success for targets in masculine-typed subjects, $F(1, 277) = 22.289$, $p < .001$, $\eta^2 = .075$, $\omega^2 = .071$.

Regarding the independent variables of interest, there were no significant main effects of either target gender identity [$F(1, 277) = .688$, $p = .407$, $\eta^2 = .002$] or target gender expression [$F(1, 277) = 1.940$, $p = .146$, $\eta^2 = .013$], and no significant interaction of the two [$F(1, 277) = .115$, $p = .892$, $\eta^2 = .001$]. That is, predictions for traditionally masculine-typed subject success did not vary based upon the target student's gender identity or expression. Regardless of target gender identity or expression, target students were expected to have moderate success in traditionally masculine-typed school subjects (M = 3.58, SD = .67).

Table 12: ANCOVA Results for Masculine-Typed Subject Success

	Sum of Squares	**df**	**Mean Square**	**F**	**p**	**η²**	**ω²**
Overall model	11.0794	6	1.8466	4.894	< .001		

Table 12: ANCOVA Results for Masculine-Typed Subject Success

	Sum of Squares	df	Mean Square	F	p	η^2	ω^2
Target Gender	0.2815	1	.2815	0.688	.407	.002	-.001
Target Expression	1.5867	2	.7934	1.940	.146	.013	.006
Gender Climate Score	9.1172	1	9.1172	22.289	< .001	.075	.071
Target Gender * Target Expression	0.0939	2	.0469	.115	.892	.001	-.006
Residuals	110.8490	271	.4090				
Total	3703.813	278					
Corrected Total	122.859	277					

Success in Traditionally Feminine-Typed Subjects

To explore participants' attitudes regarding gender diversity and school-related outcomes, participants were asked to assign the target student a letter grade and predict the student's academic self-efficacy for traditionally feminine-typed school subjects (reading and English/language). Feminine-typed school success scores were created by calculating the means of grade assignment scores and self-efficacy predictions for reading and English/language. The items demonstrated acceptable reliability, Cronbach's $\alpha = .784$, McDonald's $\omega = .785$. Feminine success scores ranged from 1.5 to 5, where higher scores indicated more success in traditionally feminine-typed school subjects. The mean feminine success score was 3.73, SD = .74. The distribution of feminine success scores was slightly platykurtic (kurtosis = -.324) and slightly negatively skewed (skewness = -.222). Visual inspections of a histogram and Q-Q plot provided support that feminine success scores approximated a normal distribution and were unlikely to impact subsequent analyses.

A 2 (target gender) × 3 (target expression) factorial ANCOVA was conducted to determine whether participants associated various gender identities and expressions with success in traditionally feminine-typed school subjects, controlling for the potential impact of contributions to classroom gender climate. No other demographic variables were assumed likely to impact feminine subject success scores. The assumption of homogenous regression slopes was met, as was the assumption of homogeneity of variance based on Levene's test, $F(5, 272) = 1.06$, $p = .381$.

The overall model was significant, $F(6, 277) = 6.851$, $p < .001$. Gender climate score was a significant covariate, such that participants who contributed to more inclusive classroom gender climates predicted more success for target students in feminine-typed school subjects, $F(1, 277) = 20.981$, $p < .001$, $\eta^2 = .068$, $\omega^2 = .065$, B = .321. Table 13 below displays model statistics for the analysis.

Table 13: ANCOVA Results for Feminine-Typed Subject Success

	Sum of Squares	**df**	**Mean Square**	**F**	**p**	**η²**	**ω²**
Overall Model	17.8928	6	2.9821	6.8508	< .001		
Gender Climate Score	10.0584	1	10.0584	20.9814	< .001	.068	.065
Target Expression	7.5623	2	3.7812	7.8874	< .001	.051	.045
Target Gender	.0370	1	.0370	.0772	.781	.000	-.003
Expression * Gender	.2352	2	.1176	.2453	.783	.002	-.005
Residuals	129.9160	271	.4794				
Total	4051.500	278					
Corrected Total	149.621	277					

There was no significant main effect of target student gender identity, $F(1, 277) = .077$, $p = .781$, $\eta^2 = .000$, and no significant interaction between target gender identity and target expression, $F(1, 277) = .245$, $p = .783$, $\eta^2 = .002$. However, there was a significant main effect of target student gender expression, such that feminine target students were expected to be most successful in traditionally feminine-typed school subjects, $F(1, 277) = 7.887$, $p < .001$, $\eta^2 = .051$, $\omega^2 = .045$. Post-hoc comparisons using Scheffé's correction method revealed significant differences between masculine and neutral targets [$t(271) = -2.53$, $p = .042$] and masculine and feminine targets [$t(271) = -3.92$, $p < .001$]. Although the pattern of results pointed to feminine targets receiving the highest feminine success predictions, neutral and feminine targets were not predicted to have statistically different levels of feminine-typed subject success, $t(271) = -1.47$, $p = .341$. In other words, masculine targets were predicted to be the least successful in reading and English/language, whereas neutral and feminine targets were predicted to be the most successful in these traditionally feminine-typed school subjects. A graphical depiction of feminine success scores across target gender expressions is available in Figure 14 below.

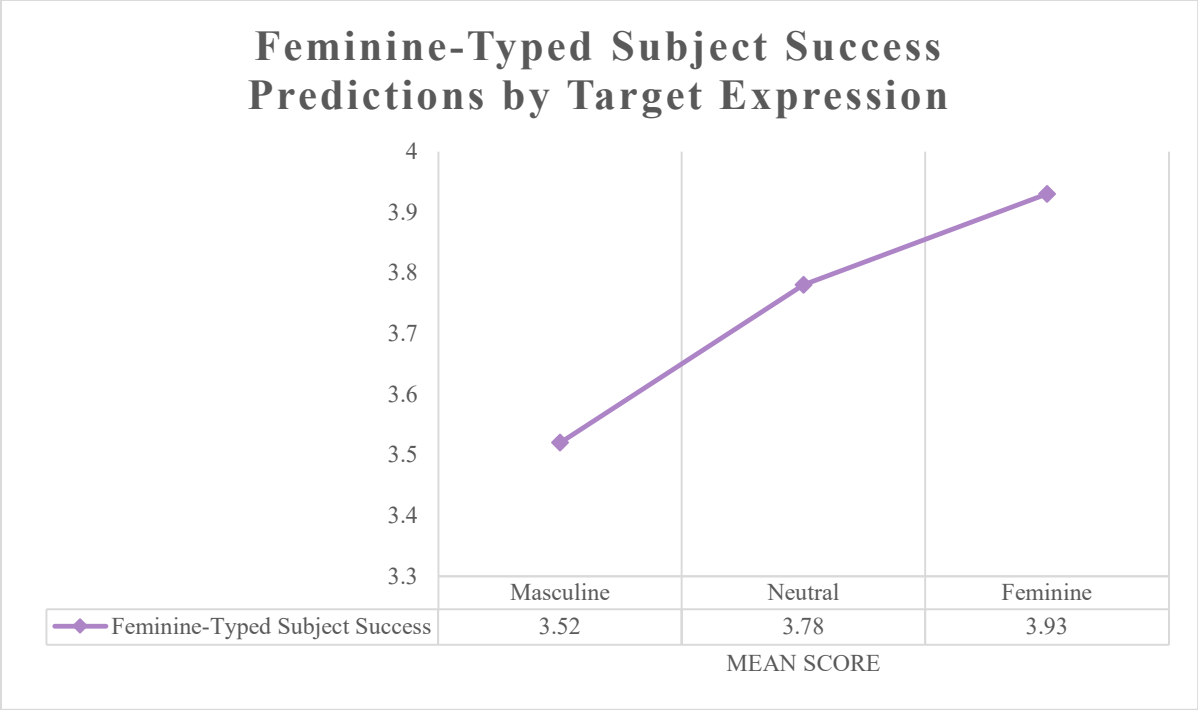

Figure 14: Feminine-Typed Subject Success Predictions by Target Expression

CHAPTER V

DISCUSSION

Schools and classrooms are contexts in which gender socialization occurs, and teachers are agents of gender socialization, whether they intend to be or not (Ullman, 2014, 2015; Miller, 2018; Wentzel, 2009; Renold, 2006; Skelton et al., 2009). A growing body of literature has demonstrated that schools can create marginalizing experiences for students who identify with a gender outside the binary conceptualization or express their gender in diverse ways (e.g., Kessler et al., 1985; Reay, 2001; Ullman, 2015a; Miller, 2018; Luecke, 2018; Hatchel et al., 2019; Günther-Hanssen et al., 2019; Xiao, et al., 2019). A much smaller body of research has evidenced that teachers may contribute to the marginalizing experiences that students of diverse gender identities and expressions face (e.g., Liu, 2006; Wentzel, 2009; Skelton et al., 2009; Brant, 2014, 2017; Ullman, 2017), most of which have utilized qualitative methods that are not generalizable beyond their sample. The current study intended to extend the discourse around teachers' contributions to classroom gender climate by examining teachers' self-reported contributions and indirectly measured attitudes about diverse gender identities and expressions utilizing a quantitative, quasi-experimental design. Moreover, this study contributed to the literature by examining teacher contributions to gender climate in the elementary school setting, a context that has been largely neglected by past research. This chapter details the findings of the current study, the ways in which this research adds meaningfully to the literature, and implications for elementary educators. Study limitations and avenues for future research are also provided, followed by concluding remarks.

Study Findings

Research Question 1: Contributions to Classroom Gender Climate

The aim of research question one was to understand the contributions of US elementary teachers to classroom gender climate through self-reported responses to the gender climate scale, which was adapted for this study from previous research (Ullman, 2017; Brant, 2014, 2017). Overall, the participants of this study reported creating inclusive classroom gender climates through acceptance and positivity toward gender diversity in their classrooms. Positive and accepting attitudes were apparent regardless of participants' demographic differences. Additionally, participants of this study had moderate to high self-efficacy for working with students and parents/caregivers of diverse gender identities and expressions. These findings align with Brant's (2017) findings from a sample of pre-service teachers and provide preliminary evidence that US elementary teachers may engage and support students of diverse gender identities/expressions as much as cisgender, gender conforming students—at least regarding academics. Elementary teachers may have few problems creating mastery experiences for all of their students in terms of mathematical understanding, for example.

At first glance, these findings seem to contradict research citing teachers' roles in the construction of restrictive, cisgender-centered classroom climates (Kessler et al., 1985; Reay, 2001; Ullman, 2015a; Miller, 2018; Luecke, 2018; Hatchel et al., 2019). However, a more detailed review of the gender climate scale responses revealed that although teachers reported positive attitudes about gender diversity, they felt relatively less confident in their ability to engage the instructional methods necessary to create inclusive gender climates (e.g., identify biases in instructional materials or design instruction to dispel myths about people of diverse gender identities/expressions). These findings, which also align with Brant's (2017) discoveries,

imply that elementary teachers may have more difficulty implementing strategies to engage and support gender diverse students in terms of their identities and psychological safety and wellbeing in their classrooms (McGuire et al., 2010; Hatchel et al., 2019).

Because of its potential impact on affect, choices, goal-setting, and effort exertion, teachers' reduced self-efficacy for engaging inclusive instructional practices may come to fruition as a self-fulfilling prophecy (Schunk 2012; Schunk & DiBenedetto, 2016), resulting in compliance with practices and attitudes that are harmful to students of diverse gender identities/expressions. For example, if teachers do not feel confident in identifying biases about gender diversity, they may be less likely to moderate peer influences on classroom gender climate. This is especially problematic because elementary teachers are positioned to meaningfully reduce the impacts of negative peer interactions (Renold, 2006; Mucherah, Finch, White, & Thomas, 2018; Ullman, 2017). Additionally, reduced self-efficacy may lead teachers to neglect educating students about issues related to gender diversity, which, whether purposeful or unintentional, is evidence of their compliance with restrictive gender climates in which binary and heteronormative conceptualizations of gender are reinforced (Ullman, 2014; Liu, 2006).

Finally, it should also be noted that although the quantity was relatively small (12; about 4%), some participants did in fact report rejection of students' diverse gender identities or expressions. These results may indicate increased likelihood for behaviors contributing to restrictive gender climates, such as direct policing of gender expression (Bochicchio et al., 2019; Ullman 2014), unwillingness to use students' pronouns (Jones et al., 2016), lack of willingness to intervene in bullying based on gender (Ullman 2015a, 2015b), differential treatment of students based on gender (Kelly, 1988; Okpala, 1996; M. Sadker, Sadker, & Klein, 1986; Tsouroufli, 2002; Leaper & Spears Brown, 2014; Parsons et al., 1982; Liu, 2006; Skelton et al., 2009; Jones

& Dindia, 2004), and other potentially harmful behaviors, but likely only for a very small portion of the population if so.

Research Question 2: Indirect Attitudes about Students' Gender Diversity

The aim of research question two was to understand elementary teachers' contributions to classroom gender climate from a slightly different, indirect angle. The vignette manipulations provided opportunities to explore attitudes about gender diversity that may be more implicit. In this regard, the indirect measure using vignettes may have been more robust against socially desirable responses.

The specific attitudes explored stemmed from previous literature suggesting attitudes commonly held about children who express their gender in non-traditional ways (e.g., Thomas & Blakemore, 2013; Martin 1990, 1995) and included attitudes related to sexual orientation and success in traditionally gender-typed academic domains. Findings and their implications for indirect attitudes about students' gender diversity are discussed in the following two sections.

Sexual Orientation

Overall, participants tended to predict relatively heterosexual sexual orientations for vignette target students; however, interesting distinctions in predictions were apparent. Although the pattern of sexual orientation predictions aligned with hypotheses for female target students (i.e., strongly masculine females more often assigned a non-heterosexual orientation), participants expected female targets to have mostly heterosexual orientations regardless of gender expression. Sexual orientation predictions about male target students were quite different, however. Both masculine and feminine male target students were expected to have relatively heterosexual orientations. The neutral male targets, who were perceived by participants as the most gender nonconforming of all target students, were expected to have non-heterosexual

orientations significantly more than target students in any other condition. The unexpected sexual orientation prediction pattern for male target students likely speaks to unexpected effects of the manipulation—specifically, participants perceived neutral targets as the most feminine. Potential limitations to the study emerging from the alternate manipulation effect are further discussed below. These findings suggest that participants expected gender non-conforming male target students (whom they perceived to be feminine) as most likely to have a non-heterosexual orientation. The expectation for gender-nonconforming male students to have non-heterosexual orientations aligns with previous research pointing to the conflation of gender nonconformity and non-heterosexual orientation (Kite & Deaux, 1987; Martin, 1990; Sandnabba & Ahlberg, 1999; Blashill & Powlishta, 2009; Thomas & Blakemore, 2013). Additionally, the lack of a similar finding for female target students aligns with previous research evidencing the differential treatment of diverse expressions of gender in boys versus girls (Thomas & Blakemore, 2013; Fagot, 1977; Blakemore & Hill, 2008; Kane, 2006; Martin, 1990; Sandnabba & Ahlberg, 1999).

Taken together, these findings indicate that elementary teachers may hold gender-essentialist stereotypes about male students, thereby contributing to restrictive gender climates that endorse a binary aligning with a "heterosexual matrix" as described by Butler (1999; Ullman, 2015b; Miller, 2018; Luecke, 2018; Rands, 2009). Although previous research has demonstrated associations between gender nonconformity and non-heterosexual orientations (Baily & Zucker, 1995; Green, 1987; Lippa, 2008; Rieger et al., 2008; Li, Kung, & Hines, 2017), the notion that gender nonconformity and non-heterosexuality are inherently and consistently connected is a fallacy related to gender essentialism and heteronormativity (Kite & Deaux, 1987). Furthermore, differential attitudes and stereotypes about male versus female students may

lead to differential, stereotyped treatment of students based on their gender identity, gender expression, or perceived sexual orientation.

Importantly, teachers may not be aware of their stereotyped attitudes about gender and sexual orientation. In this research, gender climate scores were not significantly related to sexual orientation predictions. Regardless of their self-reported positivity and acceptance of gender diversity, teachers held stereotyped expectations for gender non-conforming male students and differentially evaluated male and female students. The misalignment of directly and indirectly measured attitudes about gender diversity aligns with similar previous research (Thomas & Blakemore, 2013; Nurnberger et al., 2016; Holder & Kessel, 2017; Cahill & Adams, 1997) and may indicate potential social desirability bias in gender climate scale responses (Krumpal 2013; King & Bruner, 2000) and/or the presence of implicit biases related to gender diversity.

Success in Traditionally Gender-Typed Subjects

To explore indirect attitudes associated with school-related outcomes, participants were asked to assign target students a letter grade and predict students' academic self-efficacy in four traditionally gender-typed subjects: math and science (masculine-typed) and reading and English/language (feminine-typed).

In this study, no indirect gender stereotypes were present in elementary teachers' predictions about target students' success in traditionally masculine-typed school subjects (math and science). Regardless of target students' gender identity or expression, they were expected to have moderate success in traditionally masculine-typed subjects. These findings differ from recent literature providing evidence that K-12 mathematics teachers may expect female students to have lower mathematical ability than male students (Copur-Gencturk, Cimpian, Theule Lubienski, & Thacker, 2020). Nonetheless, the current study's findings suggest elementary

teachers may be contributing to inclusive classroom gender climates by working to perceive all students, regardless of gender identity or expression, as capable in traditionally masculine-typed subjects.

Although no gender stereotypes were present, attitudes about math and science success did vary according to teachers' contributions to classroom gender climate. Teachers who reported creating more inclusive classroom gender climates expected students to achieve greater success in math and science than those who reported less inclusive classroom gender climates. These findings may be evidence of teachers' own experience, self-efficacy, and general expectations of students. In other words, teachers who reported creating more inclusive classroom gender climates may be those who felt capable of teaching these 'difficult' subjects and holding high expectations of all students.

Evidence of gender stereotyped attitudes was present in elementary teachers' predictions of school success in traditionally feminine-typed subjects, however. Although participants did not make differential evaluations of students based on gender identity, they expected feminine target students (whether male or female) to achieve more success in reading and English/language than masculine target students. These gender-stereotyped expectations resulted even after accounting for the effects of directly measured attitudes with the GCS. In other words, regardless of how accepting, positive, or capable teachers feel regarding students' gender diversity, they may hold gender stereotyped academic expectations about students who express their gender as feminine. These findings align with previous research and may be the product of teachers' attempts to avoid appearing sexist on direct measures of gender-related attitudes (Cahill & Adams, 1995; Erden, 2004; Leaper & Spears Brown, 2014).

Elementary teachers' lack of differential evaluations of male versus female students' success in reading and English/language may represent slight progress away from cisgender, restrictive gender climates where "hegemonic masculinity" (i.e. "boys are good at math and science") and "emphasized femininity" (i.e., "girls are good at reading and English/language") are the rule (Kessler et al., 1985; Ullman, 2015b). However, teachers' differential evaluations based on gender expression imply the existence of implicit gender biases, which may still contribute to students' exclusionary experiences. The current study's findings imply that although elementary teachers may expect both male and female students to succeed in reading and English/language, this expectation may hold for only *feminine* boys and *feminine* girls. The implication that follows, then, is that elementary teachers may expect students who express their gender in masculine ways, regardless of gender identity, to achieve less success in reading and English/language.

Low expectation of masculine students' success in reading and English language is problematic for several reasons. Given the pervasive culture of cisgender, heteronormative attitudes in the classroom and beyond (Kessler, 1985; Reay, 2001; Ullman, 2014), teachers may assume students' gender expression to be static (Thomas & Blakemore, 2013). Consequently, low expectations related to perceived masculinity may serve as sustaining expectation effects (Kuklinski & Weinstein, 2001) that limit students' opportunities for growth in feminine-typed school subjects. Limitations on student success occur through self-fulfilling prophecies related to low expectations: teachers who expect masculine students to achieve less are less likely to create challenging learning experiences, provide constructive feedback, support student autonomy, or foster warm relationships with masculine students (Good, 2014). Moreover, these effects may be long-term, as previous research has shown teachers' low expectations to impact achievement

gaps in academic domains and reduced positive outcomes, such as lower educational or career attainment (Sorhagen, 2013).

Limitations of the Study and Directions for Future Research

Some aspects of this research serve as limitations and imply future directions for study. Like a large portion of the research in social sciences, this research is characterized by a predominately "WEIRD" sample, where most participants are White, [highly] educated, from an industrialized country, "rich" (i.e., not experiencing poverty), and members of a democratic governmental system (Henrich, Heine, & Norenzayan, 2010). Although some of these characteristics define the population of both the United States and elementary educators in the United States (National Center for Education Statistics, 2019), these sample characteristics limit the generalizability of results beyond similar contexts. Furthermore, although the sample size of this study is larger than many previous samples utilized in similar investigations, it is not large enough for results to be generalizable to the entire population of US elementary teachers. Additionally, participants' previous training in gender diversity was not assessed in this study. It is possible that pre-service or in-service diversity training may have impacted participants' responses to both the gender climate and indirect attitudes measures.

A final potential limitation involves the manipulation check. Although the activities, interests, traits, and behaviors used for "masculine," "feminine" and "neutral" were previously rated as such (Liben & Bigler, 2002; Blakemore & Centers, 2005) and performed consistent with these ratings in previous research with similar vignettes (Thomas & Blakemore, 2013), they did not perform as intended in this research. Masculine target students were perceived as masculine, but neutral target students were perceived as the most feminine, rather than the intended feminine target students. Perceptions of gender nonconformity followed the expected pattern for

female target students, but neutral male target students, rather than feminine male target students, were perceived as the most gender non-conforming. This alternate manipulation effect may indicate changes in gender stereotypes since the original creation of the vignettes or ratings of the behaviors, interests, traits, and occupations of which they are comprised. Nonetheless, the effect did not seem to hinder the emergence of gender stereotyped attitudes aligning with those found in other research. Future research should explore more recent perceptions of the target student descriptions, especially the neutral and feminine characters, to ascertain whether the notions of masculinity and femininity have broadened in the recent past. Such investigations may also consider multiple types of masculinity and femininity (Reay, 2001; Kessler, 1985; Ullman 2015b), which may have been at play in this research.

Perhaps the most obvious path for future research implied by this study is the development of interventions, or more generally, increased teacher training programs related to issues of gender diversity in elementary educational settings. Elementary teachers' relative lack of confidence in identifying biases and teaching gender diversity as well as their misaligned direct and indirect attitudes point to the need for specific training related to implicit biases and ways elementary teachers can engage gender diversity inclusively in their classrooms. Future research should investigate the prevalence of gender diversity education in teacher preparation programs to further ascertain the need for pre-service training. Additionally, future research should explore why elementary educators feel less capable than they do accepting or positive regarding classroom gender diversity. Explorations of the impetuses behind lower self-efficacy for creating inclusive classroom gender climates are likely to further illuminate areas for intervention.

Finally, future investigations of classroom gender climate would likely benefit from the inclusion of classroom observations, which could provide rich data assessing more comprehensive contributions to gender climate. Contributions such as the functional use of gender (Bigler, 1995) and the presence of gender bias or stereotypes in instructional methods or materials could be directly assessed with potentially less risk of social desirability bias than self-report data collection methods. Rich observational data, especially if coupled with larger-scale survey data, could further elucidate areas for intervention related to teachers' contributions to classroom gender climate.

Conclusion

School can create marginalizing experiences for students who hold diverse gender identities or express their gender in diverse ways (Kessler et al., 1985; Reay, 2001; Ullman, 2015a; Miller, 2018; Luecke, 2018; Hatchel et al., 2019; Günther-Hanssen et al., 2019; Xiao, et al., 2019). A growing body of research points to the role of teachers in complying with the creation and/or maintenance of exclusionary gender climates in schools and classrooms (Liu, 2006; Wentzel, 2009; Skelton et al., 2009; Brant, 2014, 2017; Ullman, 2017). This research adds meaningfully to the discourse by exploring elementary teachers' potential contributions to classroom gender climate.

Findings of this study highlight the complex nature of gender socialization in school. Although elementary teachers self-report acceptance, positivity, and capability for creating inclusive classroom gender climates, they may demonstrate implicit gender-stereotyped attitudes that foster restrictive climates and contribute to the marginalization of students who express their gender in diverse ways.

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Appendix A

Original IRB Approval Letter

Office of Research Integrity
Institutional Review Board (IRB)
2000 University Avenue
Muncie, IN 47306-0155
Phone: 765-285-5052
E-mail: orihelp@bsu.edu

DATE:	May 7, 2020
TO:	Rachel Thomas, MA
FROM:	Ball State University IRB
RE:	IRB protocol # 1579408-1
TITLE:	ELEMENTARY TEACHERS' CONTRIBUTIONS TO CLASSROOM GENDER CLIMATE: AN EXPLORATION OF TEACHER ATTITUDES AND CLASSROOM BEHAVIORS
SUBMISSION TYPE:	New Project
BOARD DECISION:	APPROVED
PROJECT STATUS:	ACTIVE
DECISION DATE:	May 7, 2020
REVIEW TYPE:	**Expedited:** This protocol had been determined by the board to meet the definition of minimal risk.

The Institutional Review Board has approved your New Project for the above protocol, effective on May 7, 2020. Your project falls into the Expedited Category indicated below. As such, there will be no further review of your protocol, and you are cleared to proceed with the procedures outlined in your protocol. As an expedited study, there is no requirement for continuing review. Your protocol will remain on file with the IRB as a matter of record. All research under this protocol must be conducted in accordance with the approved submission and in accordance with the principles of the Belmont Report.

Appendix B

IRB Modification Approval Letter

Office of Research Integrity
Institutional Review Board (IRB)
2000 University Avenue
Muncie, IN 47306-0155
Phone: 765-285-5052
E-mail: orihelp@bsu.edu

DATE:	October 15, 2020
TO:	Rachel Thomas, MA
FROM:	Ball State University IRB
RE:	IRB protocol # 1579408-2
TITLE:	ELEMENTARY TEACHERS' CONTRIBUTIONS TO CLASSROOM GENDER CLIMATE: AN EXPLORATION OF TEACHER ATTITUDES AND CLASSROOM BEHAVIORS
SUBMISSION TYPE:	Amendment/Modification
ORIGINAL APPROVAL DATE:	May 7, 2020
ACTION:	APPROVED
PROJECT STATUS:	ACTIVE
DECISION DATE:	October 15, 2020
EXPIRATION DATE:	
REVIEW TYPE:	Expedited Review

The Institutional Review Board (IRB) has reviewed your Amendment/Modification for ELEMENTARY TEACHERS' CONTRIBUTIONS TO CLASSROOM GENDER CLIMATE: AN EXPLORATION OF TEACHER ATTITUDES AND CLASSROOM BEHAVIORS. Your project was deemed MINIMAL RISK and approved on May 7, 2020. The changes you requested were reviewed at the Expedited Review level and were approved on October 15, 2020. Your project has been reviewed at the Expedited level.

Editorial Notes:

1. Modification approved.

Appendix C

School Recruitment Email

Hello Principal [last name],

My name is Rachel Thomas and I'm a doctoral student of Educational Psychology at Ball State University in Muncie, Indiana. I'm currently working on my dissertation, which investigates teachers' perceptions of student diversity and classroom climate. I'm looking to obtain anonymous survey data (via online questionnaires that should take no more than 25 minutes) from teachers in grades K-4, as well as a smaller sample of observation/interview data. Ideally, data collection would take place sometime in April or thereafter.

Would you be willing to allow me to conduct this research at [name of school]? If so, I'd love to formally share the findings of the research project in some way as a means of giving back to the school and everyone involved.

If you have any further questions about this request, please feel free to reach out to me--I sincerely thank you for considering it!

Have a lovely day,

Rachel N. Thomas, M.A.
Instructor // Graduate Assistant
Dept. of Educational Psychology
TC 520
Ball State University
Muncie, IN 47306

Appendix D

School Support Letters

DELAWARE COMMUNITY SCHOOL CORPORATION
Albany Elementary School
700 West State Street
Albany, IN 47320
(765) 789-6102

Joseph R. Schmaltz, Principal
Amanda Summers, Secretary/Treasurer

Reece A. Mann, Superintendent
Darin Gullion, Assistant Superintendent

February 3, 2020

Rachel N. Thomas, M.A.
Ball State University
Muncie, IN

Dear Ms. Thomas,

RE: RESEARCH ON EDUCATORS' PERCEPTIONS OF STUDENT DIVERSITY AND CLASSROOM CLIMATE

This letter is to confirm support for your request to conduct a study on educators' perceptions of student diversity and classroom climate in our school, Albany Elementary School, with data collection intended to begin in late Spring 2020.

I understand that you will administer online surveys with questions regarding educators' demographic information and their perceptions related to student diversity in the classroom. I understand that educator involvement in this project is completely voluntary. If an educator chooses not to participate in this study there will be no negative repercussions whatsoever for that educator.

Sincerely,

[redacted]

Joe Schmaltz, Principal
Albany Elementary School

Lakeland Intermediate School

Lakeland School Corporation will educate and prepare ALL students for career and life success

1055 E. 075 N.
Lagrange, IN 46761
Phone: (260)499-2480
Fax: (260) 463-2648

February 4th, 2020

Rachel N. Thomas, M.A.
Ball State University
Muncie, IN

Dear Ms. Thomas,

RE: RESEARCH ON EDUCATORS' PERCEPTIONS OF STUDENT DIVERSITY AND CLASSROOM CLIMATE

This letter is to confirm support for your request to conduct a study on educators' perceptions of student diversity and classroom climate in our school, Lakeland Intermediate School, with data collection intended to begin in late Spring 2020.

I understand that you will administer online surveys with questions regarding educators' demographic information and their perceptions related to student diversity in the classroom. I also understand that you will invite a small number of educators to participate in classroom observation or interviews in which similar data will be collected. I understand that educator involvement in this project is completely voluntary. If an educator chooses not to participate in this study there will be no negative repercussions whatsoever for that educator.

Sincerely,

[redacted]

Mr. Brad Targgart

Principal - Brad Targgart
btargart@lakelandlakers.net

Assistant Principal- Vanessa Wyss
vwyss@lakelandlakers.net

Lakeland Primary School
Where your Lakeland adventure begins!

February 4th, 2020

Rachel N. Thomas, M.A.
Ball State University
Muncie, IN

Dear Ms. Thomas,

RE: RESEARCH ON EDUCATORS' PERCEPTIONS OF STUDENT DIVERSITY AND CLASSROOM CLIMATE

This letter is to confirm support for your request to conduct a study on educators' perceptions of student diversity and classroom climate in our school, Lakeland Primary School, with data collection intended to begin in late Spring 2020.

I understand that you will administer online surveys with questions regarding educators' demographic information and their perceptions related to student diversity in the classroom. I also understand that you will invite a small number of educators to participate in classroom observation or interviews in which similar data will be collected. I understand that educator involvement in this project is completely voluntary. If an educator chooses not to participate in this study there will be no negative repercussions whatsoever for that educator.

Sincerely,

[redacted]

Traci A. Blaize, EdD

RYAN PARK ELEMENTARY SCHOOL

1000 S. JOHN McBRIDE AVENUE
ANGOLA, INDIANA 46703
(260) 668-8873 ~ FAX (260) 668-8823
http://rpe.msdsteuben.k12.in.us

Amy Heavin
PRINCIPAL
Jennifer Holden
GUIDANCE COUNSELOR
Tammy Schaeffer
SECRETARY

February 5th, 2020

Rachel N. Thomas, M.A.
Ball State University
Muncie, IN

Dear Ms. Thomas,

RE: RESEARCH ON EDUCATORS' PERCEPTIONS OF STUDENT DIVERSITY AND CLASSROOM CLIMATE

This letter is to confirm support for your request to conduct a study on educators' perceptions of student diversity and classroom climate in our school, Ryan Park Elementary School, with data collection intended to begin in late Spring 2020.

I understand that you will administer online surveys with questions regarding educators' demographic information and their perceptions related to student diversity in the classroom. I understand that educator involvement in this project is completely voluntary. If an educator chooses not to participate in this study there will be no negative repercussions whatsoever for that educator.

Sincerely,

[redacted]

Amy Heavin
Principal
Ryan Park Elementary School

Appendix E

Recruitment Email / Social Media Text Script

Hello,

My name is Rachel Thomas and I am a doctoral student of Educational Psychology. I am conducting dissertation research and seeking participants for a study investigating elementary educators' contributions to diverse classroom climate and attitudes about student diversity. Would you consider participating and/or sharing this request and the link below via email or social media? This study should take approximately 20-30 minutes of your time. When you have completed the questionnaire, you can opt in for equal opportunity to receive one of ten $50 Amazon gift cards.

If you'd like to participate, simply click the link below to be taken to the study.
https://bsu.qualtrics.com/jfe/form/SV_2hroLMn8m9Jcyr3
I really appreciate your consideration and participation in this study!

Thank You!

Rachel N. Thomas, PhD Candidate
Educational Psychology
Ball State University
Muncie, IN 47306
Telephone: (260) 350-3211
Email: rnthomas2@bsu.edu

Appendix F

Informed Consent Form

Study Purpose and Rationale
The purpose of this research is to investigate contributions to classroom climate and attitudes about student diversity.

Inclusion/Exclusion Criteria
To be eligible to participate in this study, you must be a licensed elementary school teacher in the United States, currently teaching in a Kindergarten, First, Second, Third, or Fourth grade classroom.

Participation Procedures and Duration
If you are participating in-person, you will first be asked to provide brief demographic information. You will also be asked to allow the primary researcher to observe your classroom in two one-hour sessions at least one week apart. The primary researcher will sit in an inconspicuous place in your classroom and record observations in writing. No video cameras or audio recording will occur. After all observation sessions are complete, you will be asked several questions about your classroom climate.

If you are taking this survey online, you will be presented with a short passage that describes a hypothetical student's general interests, activities, traits, and occupational interests. You will then be asked to make predictions about the student's development and academic outcomes by completing an online questionnaire. You will also be asked questions about your classroom climate. Additionally, you will be asked to provide brief demographic information. It will take approximately 20-30 minutes for you to complete the questionnaire.

Data Confidentiality or Anonymity
All data will be maintained as confidential and no identifying information such as names or schools will appear in any publication or presentation of the data.

Storage of Data
Data will be stored on a password protected flash drive. The data will also be entered into a software program and stored on the researcher's password-protected computer. Once the study is complete, data will be kept for 5 years, then deleted.

Risks or Discomforts
There are no anticipated risks for participating in this study.

Benefits
This study may provide an interesting experience for you. It is hoped that the results of this study will benefit the practice of educational psychology.

Voluntary Participation

Your participation in this study is completely voluntary and you are free to withdraw your permission at any time, for any reason, without penalty or prejudice from the investigator. Please feel free to ask any questions of the investigator before signing this form and at any time during the study.

IRB Contact Information

For questions about your rights as a parent of a research subject, please contact Director, Office of Research Integrity, Ball State University, Muncie, IN 47306, (765) 285-5052, orihelp@bsu.edu.

Study Title

Elementary Teachers' Perceptions of Student Diversity and Classroom Climate

****

Consent

I consent to participate in this research project entitled, **Elementary Teachers' Perceptions of Student Diversity and Classroom Climate**. I have had the study explained to me and my questions have been answered to my satisfaction. I have read the description of this project and I consent to participate. I understand that I have the option to receive a copy of this informed consent form to keep for future reference if I so request.

_____ _____

Participant's Signature Date

Researcher Contact Information

Principal Investigator:

Rachel N. Thomas, Graduate Student
Educational Psychology
Ball State University
Muncie, IN 47306
Telephone: (260) 350-3211
Email: rnthomas2@bsu.edu

Faculty Supervisor:

Dr. Winnie Mucherah
Educational Psychology
Ball State University
Muncie, IN 47306
Telephone: (765) 285-8514
Email: wmucherah@bsu.edu

Appendix G

Vignettes

Male, Strongly Masculine
Michael is student in your classroom. Michael is very brave, but sometimes he can be aggressive. He has many friends, all of whom are other boys. He enjoys many activities with his friends, especially building with tools and building forts. Michael's favorite toys are his G.I. Joes and his tool kit. When he grows up, he would like to be a firefighter.

Male, Neutral
Michael is a student in your classroom. Michael is very curious, but sometimes he can be secretive. He has many friends, about half of whom are boys, and about half of whom are girls. He enjoys many activities with his friends, especially practicing his guitar and singing. Michael's favorite toys are his Karaoke Machine and his Legos. When he grows up, he would like to be a writer.

Male, Strongly Feminine
Michael is a student in your classroom. Michael is very affectionate, but he tends to be emotional. He has many friends, all of whom are girls. He enjoys many activities with his friends, especially practicing cheerleading and playing hop scotch. Michael's favorite toys are his baby doll and his dollhouse. When he grows up, he would like to be a nurse.

Female, Strongly Masculine
Emily is a student in your classroom. Emily is very brave, but sometimes she can be aggressive. She has many friends, all of whom are boys. She enjoys many activities with her friends, especially building with tools and building forts. Emily's favorite toys are her G.I. Joes and her tool kit. When she grows up, she would like to be a firefighter.

Female, Neutral
Emily is a student in your classroom. Emily is very curious, but sometimes she can be secretive. She has many friends, about half of whom are boys, and about half of whom are girls. She enjoys many activities with her friends, especially practicing her guitar and singing. Emily's favorite toys are her Karaoke Machine and her Legos. When she grows up, she would like to be a writer.

Female, Strongly Feminine
Emily is a student in your classroom. Emily is very affectionate, but she tends to be emotional. She has many friends, all of whom are other girls. She enjoys many activities with her friends, especially practicing cheerleading and playing hop scotch. Emily's favorite toys are her baby doll and her dollhouse. When she grows up, she would like to be a nurse.

Appendix H

Measures

Demographics

1. What is your gender identity?

   Male, Female, Non-binary/Genderfluid, Transgender, Other

2. What is your age?

3. What is your relationship status?

   Single, Married, Divorced/Separated, Dating, Life Partnership

4. How many children do you have?

5. What is your race/ethnicity?

   White/Caucasian, Hispanic/Latinx, Black/African American, Native American/American Indiana, Asian/Pacific Islander, Other

6. What is your sexual orientation?

   Heterosexual, Bisexual/Pansexual, Gay/Lesbian, Asexual, Other

7. What is your highest level of education completed?

   High School, Technical Certificate, Baccalaureate Degree, Masters Degree, Doctoral Degree, Other

8. How many years have you taught (any grade level or subject)?

9. How many years have you taught the grade level you are currently teaching?

10. How long have you worked at your current school?

    Number of Years, Number of Months

Manipulation Checks

1. To what extent do you think that Emily/Michael's personality, interests, and behaviors are masculine?

1 = Not at All Masculine
2 = Slightly Masculine
3 = Somewhat Masculine
4 = Mostly Masculine
5 = Extremely Masculine

2. To what extent do you think that Emily/Michael's personality, interests, and behaviors are feminine?

1 = Not at All Feminine
2 = Slightly Feminine
3 = Somewhat Feminine
4 = Mostly Feminine
5 = Extremely Feminine

3. To what extent to you think Emily/Michael's personality, interest, and behaviors are typical for someone of her/his gender?

1 = Very Typical
2 = Somewhat Typical
3 = Somewhat Gender Nonconforming
4 = Very Gender Nonconforming

Target Sexual Orientation

4. Please predict Michael/Emily's sexual orientation.

    1 = Heterosexual
    2 = Bisexual
    3 = Gay/Lesbian

5. When Michael/Emily is old enough to begin to have sexual attractions and feelings, to whom do you predict he/she will be attracted?

    1 = Only Males
    2 = Mostly Males
    3 = Both Males and Females
    4 = Mostly Females
    5 = Only Females

6. When Michael/Emily is old enough to begin to have sexual relationships, who do you predict his sexual partner(s) will be?

    1 = Only Males
    2 = Mostly Males
    3 = Both Males and Females
    4 = Mostly Females
    5 = Only Females

Target Academic Performance

For the following questions, please think about how Michael/Emily might perform academically.

7. Please assign Michael/Emily a predicted current letter grade in Math:

1 = F
2 = D
3 = C
4 = B
5 = A

8. Please assign Michael/Emily a predicted current letter grade in Science:

1 = F
2 = D
3 = C
4 = B
5 = A

9. Please assign Michael/Emily a predicted current letter grade in English/Language:

1 = F
2 = D
3 = C
4 = B
5 = A

10. Please assign Michael/Emily a predicted current letter grade in Reading:

1 = F
2 = D
3 = C
4 = B
5 = A

Target Predicted Academic Self-Efficacy

For the following questions, consider how Emily/Michael might feel about her/his own academic performance.

11. How capable do you think Emily/Michael feels in Math?

1 = Not at All Capable
2 = Somewhat Capable
3 = As Capable as Any Other Student
4 = Very Capable
5 = Extremely Capable

12. How capable do you think Emily/Michael feels in Science?

1 = Not at All Capable
2 = Somewhat Capable
3 = As Capable as Any Other Student
4 = Very Capable
5 = Extremely Capable

13. How capable do you think Emily/Michael feels in English/Language?

1 = Not at All Capable
2 = Somewhat Capable
3 = As Capable as Any Other Student
4 = Very Capable
5 = Extremely Capable

14. How capable do you think Emily/Michael feels in Reading?

1 = Not at All Capable
2 = Somewhat Capable
3 = As Capable as Any Other Student
4 = Very Capable
5 = Extremely Capable

Classroom Gender Climate

*For the following items, please rate how much **you** agree or disagree with each item.*

15. It is okay for people to express their gender in different ways.
    1 = Strongly Disagree
    2 = Somewhat Disagree
    3 = Neither Agree Nor Disagree
    4 = Somewhat Agree
    5 = Strongly Agree

16. In my classroom, if a student in my classroom made fun of another student about the way they express their gender, I would defend the bullied student.
    1 = Strongly Disagree
    2 = Somewhat Disagree
    3 = Neither Agree Nor Disagree
    4 = Somewhat Agree
    5 = Strongly Agree

17. It is okay for students to express their gender in different ways in my classroom.

1 = Strongly Disagree
2 = Somewhat Disagree
3 = Neither Agree Nor Disagree
4 = Somewhat Agree
5 = Strongly Agree

*For the following items, please rate how well **you think you could do** each item.*

18. I can work with students who are gender nonconforming, gender fluid/genderqueer, or transgender.

1 = Not Well At All
2 = Somewhat Well
3 = Mostly Well
4 = Very Well

19. I can work with students' parents who are gender nonconforming, gender fluid/genderqueer, or transgender.

1 = Not Well At All
2 = Somewhat Well
3 = Mostly Well
4 = Very Well

20. I can implement instructional activities to reduce prejudice about gender nonconforming, gender fluid/genderqueer, or transgender people in my current classroom.

1 = Not Well At All
2 = Somewhat Well
3 = Mostly Well
4 = Very Well

21. I can identify biases against gender nonconforming, gender fluid/genderqueer, or transgender people in teaching materials.
    1 = Not Well At All
    2 = Somewhat Well
    3 = Mostly Well
    4 = Very Well

22. I can develop instructional methods that dispel myths about gender nonconforming, gender fluid/genderqueer, or transgender people.
    1 = Not Well At All
    2 = Somewhat Well
    3 = Mostly Well
    4 = Very Well

23. I can analyze instructional materials for potential stereotypical and/or prejudicial content to those who identify as gender nonconforming, gender fluid/genderqueer, or transgender.
    1 = Not Well At All
    2 = Somewhat Well
    3 = Mostly Well
    4 = Very Well

24. I can identify school practices that may be harmful for those who identify as gender nonconforming, gender fluid/genderqueer, or transgender.
    1 = Not Well At All
    2 = Somewhat Well
    3 = Mostly Well
    4 = Very Well

25. I can defend students who are bullied or teased for expressing their gender in nonconforming/non-traditional ways.

    1 = Not Well At All
    2 = Somewhat Well
    3 = Mostly Well
    4 = Very Well

Distractor Items

1. It is okay for people to express their religious beliefs in different ways.
2. It is okay for people to express their racial/ethnic identities in different ways.

3. In my classroom, if a student in my classroom made fun of another student about the way they express their religion, I would defend the bullied student.
4. In my classroom, if a student in my classroom made fun of another student about the way they express their racial/ethnic identity, I would defend the bullied student.

5. It is okay for students to express their religious beliefs in different ways in my classroom.
6. It is okay for students to express their racial/ethnic identities in different ways in my classroom.

7. I can work with students from a variety of religious backgrounds.
8. I can work with students from a variety of racial/ethnic backgrounds.

9. I can work with students' parents who hold diverse religious beliefs.
10. I can work with students' parents who hold diverse racial/ethnic identities.

11. I can implement instructional activities to reduce prejudice about people with diverse religious backgrounds in my current classroom.

12. I can implement instructional activities to reduce prejudice about people with diverse racial/ethnic backgrounds in my current classroom.

13. I can identify biases against diverse religious beliefs in teaching materials.
14. I can identify biases against diverse races/ethnicities in teaching materials.

15. I can develop instructional methods that dispel myths about people of various religious beliefs.
16. I can develop instructional methods that dispel myths about people of various races/ethnicities.

17. I can analyze instructional materials for potential stereotypical and/or prejudicial content toward people of various religious beliefs.
18. I can analyze instructional materials for potential stereotypical and/or prejudicial content toward people of various racial/ethnic identities.

19. I can identify school practices that may be harmful for students from various religious backgrounds.
20. I can identify school practices that may be harmful for students from various racial/ethnic identities.

21. I can defend students who are bullied or teased for their religious beliefs.
22. I can defend students who are bullied or teased for their race/ethnicity.

Appendix I

Debriefing Statement

Thank you for your time and participation in this research!

You were informed that the purpose of this study was investigate elementary educators' contributions to diverse classroom climate and attitudes about student diversity. More specifically, the purpose of the online portion of this study is to investigate elementary educators' attitudes toward students' diverse expressions of gender. You were provided with a more general description of the study's purpose to avoid primed responses to the questionnaire.

Although the generalities made are unlikely to cause any risk of harm, you are encouraged to contact to personal healthcare provider should you feel you've experienced any negative consequences as the result of participating in this study. You may also contact the Ball State University Office of Research Integrity if you have any concerns about your rights as a participant in this study (contact information below). Additionally, if you would like to remove your responses to this research, you may do so by contacting the principal investigator, Rachel Thomas, by simply clicking this link: rnthomas2@bsu.edu.

Again, thank you for taking the time to participate in this study.

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